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\*Illustrated.

## A Word About Foreign Trade.

TO those of our manufacturers who have had a taste of trade in foreign countries, and having tasted want more, the following letter from the leading rubber goods dealer in Zürich, Switzerland, will be of special interest, namely:

ZURICH, SWITZERLAND, Oct. 22, 1890.

TO THE EDITOR OF THE INDIA RUBBER WORLD.

Dear Sir: I am indebted for your address to Mr. George Catlin, the United States Consul at this place.

Being engaged in the India Rubber business in this country, I should very much like to see your journal and beg you to kindly post me a copy of it. I am already importing rubber shoes and boots from America, perhaps there might be one or more specialties in American rubber manufactures suitable for the European market; although for the bulk of technical, surgical and household rubber goods, I don't believe there is any chance of successfully competing against the European manufacturers, because apart from prices the quick supply is of great importance in those goods, and in that respect there is every advantage with the European manufacturers, of course, and more than plenty of production!

Even in boots and shoes the American export to the continent of Europe will have to content against great difficulties, and before the American manufacturers condescend to adapt their goods to the different markets in style, shape, etc., and in steady supply without delays, it will be impossible to succeed to any large extent in the competition.

Awaiting the favor of your news, I am dear sir, yours truly,  
R. SPECKER.

This is a business letter, from a practical man, who talks directly to the point and who knows exactly what he is talking about. We feel, therefore, that our manufacturers cannot do better than to read, and re-read, what he has thus written casually without thought of publication; and we desire to emphasize the importance of his reference to the necessity of adapting our goods to the different markets of Europe, in style and shape and steadiness of supply, without unnecessary delay, and beyond that, to acquaint themselves with the manner in which the Europeans are accustomed to having goods packed and presented to the eye of the purchaser.

The investigation which the State Department has undertaken at our suggestion, for the purpose of gathering all information upon such subjects through our consuls, will be of extreme value when it is finally reported and compiled in convenient book-form; and now that the instructions have been formally issued, and work by the consuls has actually begun, it cannot be long before all desirable information in relation to export trade, to any and every country, will be at the command of our manufacturers. We embrace this occasion therefore to direct special attention to the subject, and to urge upon our manufacturers, with their enormous plants, the importance of keeping an eye upon the large markets which are now supplied almost wholly by the English, German and French manufacturers.

Every day, with its improvements in travel and communication, brings our foreign neighbors nearer to us, and

renders the opportunity, if not the necessity, for interchange of products more pressing. There is no lack of markets for that which we make superior in style, finish or quality to our foreign competitors, and there is certainly no lack of rubber goods of our production which are conceded to be superior. The one thing which has stood in our way, and indeed which has stood in the way of all American products is the singular notion that we cannot compete with European countries, and a consequent indifference which leaves these wide markets completely to the foreign manufacturer. It shall be our aim to stimulate an appreciation of these facts, and it goes without saying that those who are first aroused to the possibilities of foreign trade will be the ones to profit most largely.

### More Accurate Rubber Statistics.

WITH a view to the perfecting of a system of India rubber statistics, THE INDIA RUBBER WORLD recently called the attention of the Secretary of the Treasury to the growing importance of the rubber interest and to reasons why it would be desirable to have a new style for the Government reports of rubber shipments. Heretofore imports and exports of India rubber and gutta percha have been classified together in the Treasury Department reports. It has been impossible for any one to ascertain, from official sources, the amount of either commodity imported within a given time. Imports of "India Rubber and Gutta Percha, Crude," being stated, in a single column, there was no means of determining what percentage of each entered into the receipts. Since the price of crude rubber is controlled by the amount in stock it is important that every facility should exist for gaining information upon this point. While the Government is keeping a record of rubber shipments both ways, it seemed as well that it should publish accurate figures by separating the movement of gutta percha from that of rubber, and this, it has been ordered by the Government, is to be done hereafter, as the following letter will show.

TREASURY DEPARTMENT,  
BUREAU OF STATISTICS,  
WASHINGTON, D. C., Oct. 14, 1890.

EDITOR INDIA RUBBER WORLD: In reply to yours of the 25th ultimo, referred to this office by the Secretary of the Treasury. I have to state that it has been decided to show hereafter the imports of India rubber separately from those of gutta percha in the monthly statements of imports published by this office.

The enclosures will indicate the imports of India rubber and gutta percha, respectively, during the year ending June 30th last, by ports, where nearly all of these commodities were imported.

Respectfully yours,  
S. G. BROCK,  
Chief of Bureau.

The enclosures here referred to are letters from the Collectors of Customs at New York, Boston, Providence, R. I., and New Orleans, addressed to the Bureau of Statistics, relating to the percentage of gutta percha contained in the official statements for the fiscal year ending June

30, 1890, under the heading "India Rubber and Gutta Percha, Crude." The statement for the port of New York may be summarized thus:

	Pounds.	Value.
India Rubber.....	29,883,883	\$13,205,584
Gutta Percha.....	512,213	149,840
Total.....	30,396,096	\$13,355,424

The figures from Boston follow:

	Pounds.	Value.
India Rubber.....	2,291,077	\$1,023,486
Gutta Percha.....	23,441	9,048
Total.....	2,314,518	\$1,032,534

The imports at New Orleans were of India rubber alone, being reported at 762,471 pounds, valued at \$299,445. The Collector at Providence, R. I., fails to report the amount of India rubber received, but he states that no gutta percha was entered during the year at that port.

The countries from which the gutta percha imports were received are given thus:

#### Importations at New York.

	Pounds.	Value.
From France.....	38,802	\$ 4,727
From Germany.....	28,634	12,481
From England.....	32,115	10,834
From British East Indies.....	405,637	119,887
From Netherlands.....	7,025	1,911
Total.....	512,213	\$149,840

#### Importations at Boston.

	Pounds.	Value.
From Germany.....	4,438	\$1,233
From England..	19,003	7,815
Total.....	23,441	\$9,048

These figures are the first that have been published, official or otherwise, of the imports of crude gutta percha in the United States in any given year, and THE INDIA RUBBER WORLD is assured from Washington that the ports above named practically embrace all the trade in this commodity.

### Controversy Over Rubber Imports.

COLLECTOR ERHARDT, of the Port of New York, began two suits on October 29, in the United States Circuit Court, to set aside decisions by the Board of General Appraisers with regard to imports. On two importations of combined rubber and woollen goods Collector Erhardt had assessed duties at 45 cents a pound and 40 per cent. *ad valorem*. Upon complaint by the importers, the General Appraisers reduced the duty to 30 per cent. *ad valorem*. By decisions in two other cases, rendered on October 29, the General Appraisers practically reversed their former decisions. They decided that the imported goods brought before them were wearing apparel and could not, therefore, be entered under the head of India rubber fabrics.



### A Field for Friendly Co-operation.

SOME interesting facts with reference to the growing scarcity of gutta percha trees, recently brought to the attention of the French Académie des Sciences, are given in another part of this journal. The subject is of importance not only to the industries immediately concerned, but to the India rubber trade as well, for the practical extinction of the rubber tree in some quarters from a similar wastefulness is not impossible. The fact that the rubber forests of Southern America now appear well-nigh inexhaustible does not justify the reckless methods of gathering the gum now employed by the natives. It will be remembered that in our own country the forests of merchantable timber were once so extensive that their exhaustion seemed beyond all powers of the imagination; yet in many States the disappearance of valuable trees has become so rapid that legislation has been invoked to prevent a disastrous scarcity of timber.

In such a matter as the protection or preservation of forests no effective measures can reasonably be hoped for as the result of private effort, even if backed by millions of capital, as in the case of the India rubber manufacturers of this country and Great Britain. Nothing short of stringent laws in the countries where the rubber trees exist, persistently enforced with the support of all the authority possessed by the official forces, could be expected to show beneficial results. The people of Brazil to-day are too deeply engrossed with the political problems which they are working out to be interested as a whole in any possible danger to the rubber forests. But to the more civilized countries, where rubber has become a more indispensable commodity, the future of these forests will more naturally become a live question. Why, then, should not such governments as those at Washington and London and Berlin unite in making a friendly appeal to the republics south of us—of which Brazil is only one—to adopt measures for protecting the source of a commodity in which the whole world feels an interest? Such a request need by no means be considered as a piece of governmental interference, but only a business-like showing of the widespread importance of a matter which now seems to be neglected by the governments which alone have any power to act.

This subject alone seems important enough for the holding of another "Pan-American Congress" some day.

### A Correction from Mr. Goodyear.

TO THE EDITOR OF THE INDIA RUBBER WORLD:

IN one of the issues of your paper you published a statement made by Nathaniel Hayward, December 27, 1864. I have never seen the pamphlet referred to or the statement until now, which it appears was published more than three years after my father's decease. There are some things in it which are liable to be misunderstood, and which lead me to make the following statement:

The patent taken out by Charles Goodyear for the discovery of vulcanization was issued in June, 1844, and

should not be mistaken for the so-called sulphur patent which Hayward assigned to him in 1838. The *Boot and Shoe Recorder* published July 28, 1886, a statement taken from Charles Goodyear's book on Gum Elastic, printed in 1850, in which he says: "It was through Mr. Nathaniel Hayward that he (Goodyear) received the first knowledge of the use of sulphur as a drier of gum elastic."

Nathaniel Hayward was one of the first to take a license under the patent of Charles Goodyear for vulcanization to manufacture India rubber shoes, a business which he carried on successfully from the earliest date until his death. Under this license he paid my father many thousands of dollars in royalties, so that there appears something at least disingenuous in the statement that my father "never fully performed" his promise made twenty-four years before to pay the "considerable sums on back arrearages which he was either unable or unwilling to pay." As my father had in his printed book published fourteen years prior to this statement by Mr. Hayward, given to him all the credit which Hayward claimed for himself, I do not know what capital he expected to make out of it unless it was by misleading the public in the idea that the "sulphur patent" and that for the discovery of vulcanization were the same, and for this there may have been a substantial motive.

CHARLES GOODYEAR.

New York, Oct. 18, 1890.

### U. S. Government Awards of Contracts.

THE following contracts for rubber goods have lately been awarded by the United States Government:

Supplies for Benecia Arsenal:

Geo. T. Hawley, San Francisco: 1000 ft fire hose, rubber, 80c per ft. 1000 ft do, linen, 75c per ft. 1000 ft do, cotton paragon, \$1 per foot. 60 couplings for fire hose, 2½ in, patent, \$5 each. 200 ft rubber hose, ¾ in, 12c per ft. 100 ft do, 1 in, 16c per ft. 100 ft do, 2 in, 40c per ft. 15 lbs. rubber packing, 18c per lb. 10 lbs rubber and canvas steam packing, 9-16 in sq, 38c per lb. 10 lbs do, ¾ in sq, 38c per lb. 10 lbs do, 5-16 in sq, 38c per lb. 10 lbs do, ¼ in sq, 38c per lb. 10 lbs do, ½ in sq, 38c per lb. 10 lbs do, ¾ in sq, 38c per lb. 10 lbs do, 1 in sq, 38c per lb. 10 lbs do, 1½ in sq, 38c per lb. 10 lbs plumbago and rubber sheet packing, 1-16 in, 38c per lb. 10 lbs do, ¼ in, 38c per lb. 10 lbs do, ½ in, 38c per lb. 4 sets rubber valves for "Knowles" steam pump, \$6 per set. 10 lbs sheet rubber, pure, 3-16 in thick, 55c per lb. 2 barrels asbestos, \$9 per bbl. 200 ft cotton hose, ¾ in, 9c per ft. 100 ft do, 1 in, 15c per ft. 20 ft suction hose, 1 in, 28c per ft. 20 ft do, 1½ in, 48c per ft. 20 ft do, 2 in, 72c per ft. 50 ft section hose, 5 in, for steam fire engine, \$3.50 per ft.

James Whitney, San Francisco: 10 lbs rubber packing for Fuller's patent, ¾ in, \$4 per lb. 10 lbs do, ¾ in, \$3 per lb. 10 lbs do, 1 in, \$2 per lb. 10 lbs do, 2 in.

Supplies for San Antonio Arsenal:

Tips & Hoermann: 10 lbs asbestos packing, ½ in, round, 50c per lb. 1 sq yd packing, sheet rubber, 1-16 in thick, \$2 per sq yd. 55 ft leather belting, 5 in, single, oak tanned, No. 1, 32c per ft. 18 ft do, 3½ in, 22c per ft. 16 ft do, 4 in, 25c per ft.

Leroux & Cosgrove: 20 yds, rubber packing, heavy, 54 in wide, 75c per yd.

Supplies for Augusta Arsenal:

C. A. Robbe, Augusta, Ga.: 5 lbs. packing, steam, asbestos, board, 30c per lb. 5 lbs do, wick, 25c per lb. 5 lbs do, piston, 25c per lb. 10 lbs packing, steam, gum, 20c per lb. 10 lbs do, hemp, 20c per lb. 10 lbs do, wick, 25c per lb.

Supplies for Allegheny Arsenal:

Davis & Watson, Pittsburgh, Pa.: 50 ft gum hose, 14c per ft.

Supplies for Indianapolis Arsenal:

Knight & Jillson, Indianapolis, Ind.: 100 ft hose, 3/4 in, 3 ply, 12c per ft.

### Going Too Far.

I DO not mind that Adeline,  
The girl I lately wed,  
Should fail to be in some respects  
Just all I should have said.

I mind not that her golden hair,  
That made the sun look pale,  
Should sometimes hang upon her head,  
And sometimes on a nail.

I don't complain a particle  
To find her cheeks so red,  
Are not the work of Nature's hand,  
But of her own instead.

And ah! those rare and pearly teeth,  
Whose whiteness stirred my soul;  
I did not say a single word,  
When I found them in a bowl.

But I really think I'm warranted  
In just remarking that  
It's crowding matters when she leaves  
Her gums out on the mat.

JOHN P. LYONS.

### A Touching Scene.

IT is well enough to talk about "a guilty conscience needing no accuser," but it is well also to remember that a man may look guilty, and feel guilty, when he is as innocent as a babe unborn. The Editor of THE INDIA RUBBER WORLD was a living illustration of this truth but a few days ago. It happened that he was seated at the breakfast table at home when the morning mail came in. On the top of the batch of business letters lay one of square shape and feminine backing. It caught his eye, and others' too, and the conversation flagged and came to a standstill as he took it with ill-concealed alarm and awkwardly opened it. A tiny perfumed note was within and a spray of faded flowers. With trembling hands and burning cheeks the unhappy man read: "Take back the flowers thou gavest. I love you no longer; all my affection is now given to —"

"Are you ill?" asked the editor's wife, coldly.

"Oh, no, no," he stammered.

"Then why don't you finish your letter?"

Slowly he turned the page, dreading to see the name that should follow. "All my affection is now given to the Metropolitan Rubber Co. because they make such beautiful mackintoshes. I am no longer yours,

"MAUDE."

"It's an ad.," he said, and breathed again.

## The Rubber Plants, and the Rubber Yielding Area of Tropical America,

BY COURTENAY DE KALB.

### SECOND PAPER.

THE diversity of names, derived chiefly from the places of export, which are applied to a single variety of Central and South American rubber, has established prejudices which are most unfortunate. The Peruvian Caucho, the Guayaquil strip, the Cartagena strip, the Nicaragua scrap and sheet, and the Guatemala sheet, are in reality one and the same, notwithstanding that the prices vary from forty cents to sixty-two cents. At present there is justice in this arbitrary classification, since the methods employed by the natives in the different localities result in producing a variety in the quality of the rubber, corresponding to the prices obtained. In some districts the bark of the tree is simply slashed, and the milk allowed to flow down the trunk and thicken by contact with the air, in others the milk is collected in holes scooped in the ground at the base of the tree, and the juice of a vine, *Ipomaea bona-nox*, a species of convolvulus, is added as a coagulant, and again, as in Peru, common soft brown soap is used to effect coagulation. In many places the tree is cut down in order to secure all the milk it contains, while in those districts where the bark is scored the rubber gatherer, *cauchero*, *jebero*, or *ulero*, carelessly cuts into the wood, instead of stopping, as he should, at the inner bark which contains the lactiferous vessels, so that the tree speedily decays. The result, then, whatever the method, is in most cases the destruction of the tree. It is only a question of time when the diminution of the natural supply will lead to its systematic culture, and to a careful study of the means of curing so as to produce a uniform grade, and then the planter will encounter difficulty in overcoming the prejudice created by the existing classification.

The various rubbers just mentioned are obtained from the *Castilloa elastica*, of the *Artocarpææ*, or bread-fruit family, which in some of its characteristics approximates the *Urticaceæ*, or nettles, so closely that some botanists have classified it among them. The *Castilloa* is lofty, with horizontal, alternate branches, spreading into a handsome dome, upheld by a massive trunk often four feet in diameter. The leaves are alternate, fifteen inches long and seven inches wide, heart-shaped at the base, with the apex rather abruptly acuminate, and having the ribs and nerves on the upper surface covered with long stiff hairs, while the lower surface has shorter hairs of a brownish color. In the narrow wooded valleys through the arid parts of southern Mexico this tree is very conspicuous amidst the other less luxuriant shrubbery. It abounds throughout Central America, Colombia, parts of Venezuela, southward through Ecuador, and also eastward of the Andes in Colombia, Ecuador and Peru. It is likewise native in Cuba and Hayti.

In addition to the north-western portion of South America, which is the home of the *Castilloa*, and the middle and north-eastern portion, in which flourish the several species of *Hevea*, the producers of "Pará" rubber, there is a third region of arid plains and rocky mountains, from which come the two classes of rubber known as "Ceará" and "Mangabeira." This change from the moist warm countries of the north to the semi-barren hills and plains of the south, commences even in the province of Grão Pará, the middle and northern portions of which province are unsurpassed throughout the globe for magnificence of vegetation. The transition is exceedingly abrupt. The country rises gradually, and as it does so the signs of barrenness



rapidly appear, while the rank growths of the tropics are found only in narrow tongues following the courses of the rivers. The arid region expands toward the south and east, involving the south-western and eastern parts of Maranhao, the whole of Piauhý except the valley of the Rio Parnahyba, and all of Ceará, Rio Grande do Norte, Parahyba, Pernambuco, Alagoas, and Bahia, except for a strip of thirty miles along the coast which is humid. That part of Minas Gerães which is drained by the Rio Sao Francisco is also dry, and westward similar conditions are found throughout the whole of northern Goyaz, save along the Rio Araguaya, and thence the arid hills extend westward in a wide belt through Matto Grosso to the Bolivian frontier, crossing the head waters of the Rios Xingú and Arinos. The entire arid region aggregates about 865,000 square miles.

Conspicuous among the scanty vegetation here is the large genus of plants known as *Manihot*. Some are trees of considerable magnitude, but the majority are mere bushes or shrubs from two to ten feet in height, while a few are prostrate, with short stubby branches and scanty leaves. This genus, like the *Hevea*, belongs to the family *Euphorbiaceae*, and fully half of the seventy-one species of the genus yield a milk containing rubber in varying quantities. The larger number of these plants grow in the practically inaccessible provinces of Goyaz and Matto Grosso, so that little is known about them, but the accounts of travellers lead to a suspicion that some may possess qualities which will recommend them to the world as important yielders of rubber. A present the Ceará rubber is supposed to be obtained from the *Manihot glaziovii*, but the determination of the species having been made from plants grown from the seed at Kew, the question is involved in some doubt. Dr. Johann Mueller, who described the *M. glaziovii* from Brazilian specimens, limits its habitat to the province of Rio de Janeiro,

and ascribes to it the same habits as two well-known species, *M. utilissima*, and *M. palmata*, var. *Aipi*, but the seeds obtained for the experiments at Kew, and at Peradeniya, Ceylon, were from Bahia, or Pernambuco, and it is confessed that it departs very manifestly from the habits of *M. utilissima*.

Whatever this tree may be, it is a very remarkable one, and the experiments in India and Jamaica show it to possess an adaptability to circumstances which is fraught with importance in view of the possibilities in South America. In Ceylon it

grows from the sea level to an altitude of 3000 feet. It thrives in Calcutta, Madras and in Burmah, and the reports from the West Indies are likewise favorable. It is of exceedingly rapid growth, attaining a height of 30 feet in two and a half years, at which time, the trunk then being more than 7 inches in diameter, it will yield its full quota of rubber. It grows on loose sandy soils, or exhausted coffee land, or in any dry, gravelly, or rocky region which will produce even the scantiest shrubbery. The only imperative conditions of climate are, a temperature never below 60° F. and freedom from excessive moisture. The experiments with it at Singapore failed because of the protracted wet season. It grows readily from the seed, or from cuttings. The seed-case being exceptionally hard, it is found advisable to file off the radicular end to aid it in splitting. Seeds thus treated and placed in moist sand will sprout in two or three weeks, when they may be



MANIHOT GLAZIOVII, Mull. Arg.

permanently transplanted. Cuttings a foot long will grow merely by planting to a depth of six inches in the sandy or gravelly soil where it is intended the tree shall remain. Single bud cuttings may also be grown in pots and transplanted. The tree normally attains a height of about forty feet, having the dome shaped crown so common among tropical trees. The bark is purplish grey, the leaves abundant on recurved petioles, or leaf-stalks, as long as the leaf itself. The

latter, from five to seven inches long and of equal or greater width, is palmate, somewhat like the northern sassafras, having from three to seven lobes, the clefts extending four-fifths of its length. It is smooth on both sides, thin in texture, but strongly nerved, deep grass green above, but decidedly greyish beneath. The flowers are large and coarse, monoecious, set in panicles, having a bell shaped calyx of five sepals, pale greenish outside touched with purple, which latter color is intensified within.

The facility with which the *Manihot glaziovii* will yield to cultivation, and the rapidity of its growth, give a new value to the great interior arid plains of Brazil, to which this tree is naturally adapted. These are to Brazil what Arizona and New Mexico are to the United States. Here are extensive grassy uplands, already noted for the fine cattle which they produce; the old places having yielded all that native labor could extract of gold and diamonds, her mineral resources have since remained neglected; and now we see that one of the most remunerative trees in the world, which will grow and yield with a minimum of care, is native to the soil. Furthermore, the dryness of the climate eliminates the whole danger of those bilious, or malarial fevers common to the tropics, so that Europeans and North Americans would have nothing to fear in regard to health. With adequate means of communication by a short route to the coast, this region would become one of the most attractive to emigrants in the whole of this new republic, and aside from its other resources, it could be made one of the greatest rubber producing countries in the world.

Further possibilities of the genus *Manihot* may be indicated by the distribution of its species, two of which are native to the forests of the Amazon, one to the inter-Andean valleys, and three\* being found spontaneous and cultivated in every country all the way from Rio de Janeiro in the south, to Mexico in the north, and these three are those which most closely resemble *M. glaziovii*.

The "Mangabeira" rubber is from a tree of the same name, derived from the Tupi Indian word, Manga-iba (*Hancornia speciosa*) belonging to the *Apocynaceae*. It is a small tree, fifteen to twenty-five feet in height, with spreading branches, drooping at the ends, like a weeping birch. Its foliage is sparse, and the leaves are small, elliptical, smooth on both sides but not shining, dark olive in color above, paler beneath. It bears an excellent edible yellow fruit, of the size of a plum. It is very generally cultivated in all the coast provinces of Brazil from Pernambuco southward, and also as far west as Goyaz, the fruit being in request as much, if not more, than the rubber, the fact being that in many places where it is grown, the natives are unaware of the value of the rubber it produces, a local market for it never having been established. The possibilities for easily increasing the output of rubber of various kinds in Brazil are so evident that it is almost certain that the wave of activity which is now sweeping across that country will soon have an effect upon this branch of industry, changing materially some of the present factors in the rubber trade.

\**Manihot utilisima*; *M. palmata*, var. *Aipi*; and *M. Carthaginensis*.

We regret exceedingly to announce the death of Mr. George H. Elliot, assistant superintendent of the Candee Rubber Co., which occurred at his home in New Haven on the 8th inst. Mr. Elliot was the eldest son of Superintendent Elliot, being but thirty-six years of age. He leaves a wife and many warm friends to mourn his early death.

### Every-day Work in the Factory.

BY NICK R. AUGUR.

THE most uncertain business in the wide world is the manufacture of rubber goods. Small wonder that it took Goodyear and a host of other worthies a long time to discover the proper method of accomplishing the most simple results. A friend of mine who runs a very successful factory on mechanical rubber goods, and is himself quite an enthusiastic inventor and experimenter when the pressure of business will allow it, is hard at work just now on a problem that strikes me as being one of exceeding interest. This is nothing more than an examination of the débris that is to be found in the sieves under the rubber washers. The variety of vegetable matter, of minerals, of clays, and the different kinds of Amazonian, Central American and African mud that he has discovered, is perfectly amazing. He is also testing very carefully the water that runs off from the various washings to discover whether it has in it a trace of acid or alkali, or whether it contains sugar. In brief, he wants to know what he buys when he buys the crude gum, and what possible effect these various foreign substances may have upon the gum. I question very much whether he will be able to reduce his knowledge to so fine a point as to make it anything more than interesting, I doubt if he can make it practicable. If he discovers that a certain grade of Central American rubber contains foreign material that is strongly alkaline, and which injures his goods, I am morally certain that the rubber gatherers will pay no attention to his demand for better work, but will continue to run in alkaline matter as much as may suit their convenience. I well remember the decided "kick" that he made some years since when he began first to buy the lower grades of rubber, and when he discovered in some promising ball a pair of mouldy overalls that smelt as if they came from the heart of Africa. He kicked, but his kicking did no good, and even when his men complained that the knives that they cut up the lumps with were dulled by stones that they found in the centre, and that the shrinkage from the masses of clay in the washings were considerable, his remonstrances were of no effect. Hence I fear that he is throwing his time away, although the research is interesting and his notes on it will some time be valuable as matters of reference.

Speaking of the differences that one finds in crude rubber, reminds me of the experience of another friend of mine—one of the most progressive superintendents in the United States. He had been using Caucho gum for some time and with the very best of results—in fact, had been using it for a number of years without the least trouble, and was mentally flattering himself that if there was any one gum in the world that he thoroughly understood, and could bring out from his vulcanizer in good shape every time, it was this same Caucho. He fell upon a day, however, that a heat of goods came out of the vulcanizer badly burned. The heater man was therefore at once summoned to the office and given a most energetic and scientific dressing down. This heater man was one who had the reputation



of being pretty reliable; he never touched the flowing bowl, and was singularly conscientious about his work. When therefore he stuck to it that the heat had been run according to regulation, the superintendent was staggered, and thought there might be a possibility of some trouble with the thermometers. He therefore put in new instruments, and after cautioning his man, went home, leaving the heat on for the night. The next morning, on examination, the goods were found to be burned as badly as ever, and the conscientious heater man swore by all the saints that he had done his best and run it exactly according to orders. Further than this, the thermometers were tested and were all right. The superintendent then concluded that it was time for him to look into the matter personally, and he stayed that night and ran the heat himself. He succeeded in burning the goods just exactly as his heater man had; and then he began to hunt for the cause. It was possible, he argued, that too much litharge, or a little too much sulphur might be put in the compounds, and he at once began an examination to see if this was the cause; but he found that the usual amount of sulphur was going in, and the compounds remained unchanged.

To make a long story short, he began experimenting as if the gum was an entirely new one. He cut down the amount of sulphur nearly one-half and he reduced the amount of litharge almost one-third before he got this new lot of Caucho to curing properly. Now comes the curious part of the story. All this happened months ago, and he has had various lots of Caucho since then, and all of them cure with this lessened amount of sulphur. How is it to be accounted for? Is there a new method of gathering the rubber? Has some new chemical change taken place in this gum that leads it to cure easier? Were this the only problem that confronts the rubber men, it could be easily hunted down, but the wisest of them will tell you that they are never sure of their ground, that the most constant watchfulness is necessary to have the cures come right, to see that the right amount of compound, and particularly the right amount of sulphur, for various gums, is incorporated.

It is not so many years since a rubber shoe company, now defunct, had a man in charge who made up his mind that African rubber of the softer sorts could just as easily be used for the best grade of boots and shoe uppers as Pará rubber. Indeed, he argued that it was all rubber, and by proper manipulation one was as good as the other. He therefore laid out a line of compounds in which the same amount of sulphur was to be used in the Pará compounds. When the goods first came out they looked beautiful and he was much rejoiced, but in the course of a few months, when case after case of sulphured goods began to come back, he realized that it was better first to experiment and know exactly what your gum would do before taking it for granted that rubber was rubber, and that all rubbers could be used exactly alike.

A gentleman speaking to me the other day about Tuno gum gave me a pointer that struck me as valuable. He had used Tuno for a sticker in several kinds of goods, and for a while it answered his purpose admirably. Indeed,

any one who has used this gum must confess that it has sticking qualities that go ahead of almost anything under heaven. He learned after a time, however, that the Tuno behaved very badly with him, that it seemed to disintegrate and powder, and to lose every bit of its life and holding qualities. He therefore, instead of at once condemning it and swearing he would never use another pound, tried a system of washing it and then letting it soak a little while in weak ammonia and water. According to his report this did it a heap of good, and while it retained its adhesiveness it did not seem to go to pieces in a short time, as it had previously done. How practical his experiments were in this line it is hard to say. It may be that he got another lot of Tuno that was better than the first. However, it is an experiment that could easily be tried, and if the ammonia and water does help the gum, it could easily be applied.

### Current Gleanings.

BY LIGHTNING ARRESTER.

AMONG the papers read at the recent meeting of the British Association, at Leeds, was one by William Thomson (not *the* Thomson), a distinguished chemist, entitled "Notes on the Vulcanization and Decay of India Rubber." An interesting experiment made to determine the action of copper on rubber, which had been stated to be destructive if the temperature of the two materials were high, was described as follows: The object of the experiment was to discover whether the action was due to the copper itself, or to its power of conducting heat more rapidly to the rubber. On a glass plate was laid a sheet of rubber and on the rubber were placed four clean disks, one of copper, platinum, zinc and silver. The materials were placed in an incubator at 150 deg. Fahrenheit and kept at that temperature for a few days; the rubber was then examined and it was found that the part under the copper had become quite hard and under the platinum it was slightly affected and hardened in parts, while the rubber under the zinc and silver disks was quite sound and elastic. From this it would seem that the pure metallic copper had exerted a powerful oxidizing effect on the rubber, the platinum had exerted a slight effect, while the zinc and silver had had no injurious influence. Curiously enough it was found that the rubber thus hardened by the copper contained no appreciable trace of copper, showing that there was no combination of the two substances, but that the copper presumably sets up the oxidizing action in the rubber without itself permeating it.

A very simple and ingenious method of locating any incipient fault in the parts of machinery in motion has been devised and described by a French engineer, M. Rodolphe Bourcart. When any part of a machine develops a flaw or other defect, the mischief is generally announced by a change or modification of the noise which the working parts normally emit. It is of course very inconvenient to stop a whole workshop of machinery in order to detect the cause of any irregularity, and amidst the general clatter it is naturally very difficult to detect any change in the sound made by one machine. M. Bourcart's fault finder consists of a length of ordinary rubber tubing, one end of which is held to the ear while the other is moved about over the parts of the machine under investigation. In this way the vibrations given out by the moving parts being examined, are concentrated on the ear of the observer to

the exclusion of other sounds, and any irregular action in even the smallest parts of a machine may be discovered.

It appears that the new tariff law prohibits the importation of any foreign manufactured goods for Government use without payment of duty. Heretofore the Signal Office has had the advantage of free admission for all the English cables, wires and other telegraphic material it needed, and its estimates for this year were based upon the expectation that the same rule would prevail. It is said that the misapprehension seems to exist, on the part of the Government officials, that although American manufacturers can turn out insulated wires of high enough grade for submarine use, they do not use armor wires sufficiently well-galvanized to stand the prescribed tests. That this is a misapprehension, I should think there can be very little doubt, and submarine cable manufacturers in this country should lose no time in convincing the "Government officials" that they are mistaken.

A patent has recently been taken out by Mr. Edison for a method of applying fireproof insulating covering to wires for electrical purposes. The material used as a basis for the compound is either balata or gutta percha; the gum is first dissolved in chloroform, and a stream of chlorine gas passed through the solution. This process eliminates the hydrogen from the material and leaves a compound which is fireproof, and, if the chlorination is stopped at the proper time, pliable. During the passage of the chlorine, tests are made from time to time by depositing films of the composition on glass plates and igniting them; when the film refuses to ignite the proper stage has been reached and the supply of chlorine is cut off. The compound is then ready to be applied to the wire in the usual manner, by being reduced to a plastic condition and forced through a die. The process sounds more like a laboratory experiment than a practical method and is likely to be both costly and dangerous, dangerous as regards the health of the employees employed. It is also questionable whether the resulting material would possess the very necessary quality of durability, as gutta percha improved by treatment with chlorine.

An insulated binding post for use on high-tension dynamos or motors has been introduced by M. C. Chase, of Chicago, a well-known manufacturer of hard rubber. The screw and body of the binding post are thoroughly cased in with hard rubber, which is vulcanized on the metal and finished afterwards so as to form a smooth polished surface, the edge of the screw being milled and the whole having the appearance of a binding post made from hard rubber only. The insulation is perfect and the binding post can be handled, when high tension machines are running, with absolute safety.

Among the new electrical companies is the Aerial Conduit Company, which has just been incorporated in this State. The company's business programme is to manufacture and sell conduits and tubing for electrical conductors and wires and other purposes, posts and other supports for the same, together with supports for electric lights and wires, and insulated wires and cables. The headquarters of the company are to be in New York City.

The "Canvas Jacket" patent woven insulated wire, which was recently described in these columns, is enjoying a rapidly growing popularity amongst users of high grade moisture proof wire. It is handled by the Illinois Electric Material

Company, of Chicago, who are in receipt of numerous testimonials praising its high insulation, resistance to abrasion and toughness.

The New York Insulated Wire Company of 649, 651 Broadway have received an order for wire to be used in the White House. The company have also furnished the wire for the Statue of Liberty, the Washington Monument, and count among their patrons the State, War and Navy Departments, so that they very naturally feel entitled to the name of the National Wire Manufacturers. The new monstrosity near the bridge called the Pulitzer Building has been wired with Grimshaw white core for electric lighting, and some \$15,000 of the same well-known material is to be supplied by the New York Insulated Wire Company for wiring the Carnegie Music Hall at Fifty-Seventh St., and Seventh Avenue, which is approaching completion.

Boston is going to have an inspector of electric wires. This official will have a salary of \$3,000 a year; his duties will be the "supervision and regulation" of electric wires. New submarine cable schemes are floating in the air. It is reported that a company has been formed in London to lay a new Atlantic cable direct from Valentia to some point near New York. It is proposed to build lines from New York to Boston, Chicago, Philadelphia and St. Louis, so that the new company may be able to make a strong bid for American business. The Pacific cable is again being talked about as a short time ago Australia was telegraphically cut off from the rest of the world for nearly two weeks by the sudden breaking of all the three cables which connect Java with Australia. The cause of the interruption was a submarine earthquake, such disturbances being by no means uncommon in that part of the world. The three cables were broken in the same vicinity, and not merely broken but absolutely destroyed for a considerable distance. The Australians are anxious to have the Pacific cable laid as that would give them an alternative route and probable immunity from complete interruption of telegraph service. It now appears that Sir John Pender, the leading spirit of the submarine cable ring, is taking an interest in the Pacific cable, which he has steadfastly opposed for many years. If it is to be laid, however, he thinks that his company had better do it.

Other new cables are being laid or about to be laid in the vicinity of the two Americas. It is proposed to connect Nassau with the Florida coast by cable and the work will probably be undertaken very shortly. The French West Indian Cable Company are making considerable additions to their system of cables. Some of the new lines will connect the islands with the mainland and extend southward to the coast of Brazil. These cables are to be laid by the *Westmeath*, the vessel which recently laid the cable from Halifax to Bermuda. The steamer *Silvertown*, the largest cable steamer afloat, left the Thames last month with over 1700 miles of cable on board, bound for the west coast of South America. The cable is to be laid for the Central and South American Telegraph Company as an extension of their system, which at present reaches from the Pacific coast of Mexico to Lima, Peru. The new sections will be two in number, from Lima to Yquique the nitrate port of Chile, and from Yquique to Valparaiso. There has been a system of cables in operation between Lima and Valparaiso for the past fourteen years, but the cables touch at a number of points along the coast and the new lines will afford more direct communication.



### Rubber Culture in the Southern States.

NEW YORK, November 5, 1890.

EDITOR INDIA RUBBER WORLD:

Dear Sir:—I regret to see the manner in which the Secretary of Agriculture dismisses the suggestions for evolving a rubber plant adapted to the Southern United States, which were made in the INDIA RUBBER WORLD of August 15. The statement that, if there is nowhere in the United States a climate fitted for the profitable growth of rubber-producing trees, then no expedient that may be resorted to will meet this primary requirement, is I think unwarranted by previous horticultural experience. In the first place the fact of a plant's natural habit at being strictly tropical is no evidence of that plant being tender. It very often happens that tropical shrubs are perfectly hardy in northern latitudes. Again it is not uncommon to find that the seeds of a plant thriving in a mild climate, upon being grown in a colder country produce stunted specimens at first, but the seeds of the stunted plant produce thriftier plants, and a continuation of this process will often result in a thoroughly acclimatized plant similar to its southern progenitor.

The suggested cause of failure, which Secretary Rusk prophesies for hybridization, is scarcely the one which might be expected to prove most obstinate. Of course to carry forward such an experiment it would be necessary to propagate the rubber plants in a greenhouse, providing artificially a suitable climate, and thus we could have our northern and southern plants side by side. Such means have already been successfully adopted by the English, the French, and other nations. The great difficulty would be to effect a cross between two different genera, and of course it would be still more difficult between a *Morus* and the Euphorbiaceous *Hevea*. But such remarkable results have been obtained that it is always worth while to make a new effort, and the laws of hybridization are still in such obscurity that no one can positively predict failure. Botanists are even unable as yet to define absolutely what constitutes a species! Under such circumstances it is wiser to hope for success. The efforts to cross the catalpa with the trumpet vine, the apple with the pear, the cherry with the plum, and many others, have it is true proven futile, but on the other hand the raspberry has been crossed with the blackberry, Child's Great Japan Wineberry with both the blackberry and the rose, and a hybrid of the wheat and the rye is noted as a triumph of modern horticulture, producing a cereal with a large head like the rye, large grains like the wheat, and like the rye again, ripening early in the season. More recently a very remarkable cross was effected by Mr. E. S. Carman, between the *Rosa Rugosa* of Japan, and Harison's Yellow, an Austrian rose. The former differs widely from all other roses, being a densely foliated plant, beautiful for its foliage alone. The leaves are thick and leathery, with a glossy wrinkled surface. The flowers are large, single, and white or pink in color. Mr. Carman in speaking of the hybrid says the flowers "are so nearly the color of Jacqueminot, that they cannot be distinguished by color. The odor is

also the same. It is nearly as perpetual a bloomer as is its mother *Rugosa*. The leaflets, while preserving much of the thick wrinkly texture, are larger than those of *Rugosa*."

Secretary Rusk also affirms that grafting on a hardy stock does not, consequently, render the scion more hardy. Now it is well known in horticultural practice that the stock does very often transmit its own peculiarities to the scion, and among other characteristics hardiness is likewise transmitted. For example the Southern Magnolia, a tender plant, is rendered hardy by being grafted upon *M. acuminata*, and no one would think of grafting the Baldwin apple upon a Baldwin stock for planting in the Western States where the winters are exceedingly rigorous, but if the Baldwin is grafted upon the hardy Russian apple as a stock, the scion will easily endure such severe climatic tests. As was instanced before, the tender Mexican oak was likewise rendered hardy by grafting upon a Northern oak.

There certainly is no climate in this country resembling that of the Amazon Valley, but the hope of the suggested experimentation is to produce a rubber plant, acclimated to the low lands of our Southern States, which will yield a profitable amount of gum, thus enabling these waste lands to be made remunerative, and giving employment to a large number of people in districts which otherwise could not sustain more than the most meagre population. England is constantly engaged in experiments, many of which are not as promising as this one, with a view to adding to the industries of her colonies, and it is the same thing which in this instance is proposed for the possible benefit of the United States.

It is to be hoped that the Department of Agriculture will lend its assistance to further any efforts in this direction, and not condemn a project where predictions of failure are as yet merely based upon guessing. The chances may very likely be largely against it, but it certainly is not unwise to take the few chances which might end so beneficially.

Very respectfully yours,

COURTENAY DE KALB.

### The Waste of Gutta Percha Trees.

AN important communication has been presented to the French Académie des Sciences by M. Sérullas regarding the production of gutta percha. This material, it is well known, is employed almost exclusively for insulating the conductors of submarine cables. It is the only insulating substance that can be used for this purpose and which is capable of withstanding prolonged submersion in salt water. Without it the existence of submarine telegraphy would be seriously imperilled, as many unsuccessful attempts have been made to find a substitute for gutta percha in the manufacture of ocean cables. It is obvious, therefore, that the extinction of the tree which produces this valuable gum would be a calamity of world-wide importance, yet it would appear from the researches of M. Sérullas that such a calamity is by no means improbable.

M. Sérullas was appointed by the French Government some years ago to investigate the production of crude gutta, and the

main features of his report are given below. The tree which yields the crude gum is the *Isonandra gutta*, which belongs to the flora of the Malay archipelago. It is to the natives of these islands that we owe the threatened extinction of gutta percha, as they have been accustomed to extract the gum in the most barbarous manner. Instead of proceeding with the *Isonandra* in the same way that obtains in the extraction of India rubber, namely by making periodical incisions in the bark, which would not endanger its existence, the general plan has been to cut the tree at the root so that the sap could be extracted once only and the tree was ruined thenceforth. This criminal method of procedure brought about in a comparatively short time the very natural result that the precious tree almost entirely disappeared from the Malaysian Isles, and gutta percha became alarmingly scarce.

The *Isonandra* flowers only once in every two years, and M. Sérullas has spent more than that period of time in studying its physiology and history of which his report gives a very detailed account. The tree attains an average height of from forty to fifty feet, the leaves varying from eight to ten inches in length by about two or two and one-half inches in breadth. During his researches M. Sérullas encountered roots of the *Isonandra* in old plantations that had been abandoned thirty years ago, and which might yet be yielding a periodical crop if the trees had been treated in an intelligent manner. He was enabled to study the tree in all periods of its development in blossom and in fruit, and has performed an invaluable service to science in making known the complete history of this tree; thanks to these researches it will now be possible to take measures for the proper cultivation of the *Isonandra*.

Some idea of the extent to which these trees have been disappearing may be gained from the statistics of exports of gutta percha. In 1845 only 19,800 pounds were shipped to Europe. In 1857 the amount was 528,000 pounds. In 1879 the shipment from Sumatra reached 297,000 pounds, and that from Borneo 2,860,000. It was calculated that in order to obtain the amount produced in the latter year alone the natives must have destroyed 5,000,000 trees. In 1881 England, France and Holland each sent out a scientific commission to study the situation, when it was found to be next to impossible to discover adult trees. The natives attack the trees as soon as they will yield any gum, and do not wait for them to multiply their species. Efforts have been made by all these countries to check this waste of the forests, and Holland has undertaken the encouragement of artificial plantations, but only the inferior species of the *Isonandra* have been successfully grown as yet. It must be understood that the different species are not equally valuable. Submarine cables laid in the same waters have been found to last according to the quality of gutta percha used in the covering. Those insulated with inferior gum lasted only one month, while cables covered with the superior quality showed no impairment at the end of ten months. Already the scarcity of good trees has led to the adulteration of their gum with that of the inferior species, so that care in buying gutta percha is becoming more and more important.

The portion of Southern Brazil which has been referred to in the INDIA RUBBER WORLD as offering a feasible field for railway development, is at least being supplied with telegraph facilities. The last number of the *Rio News* received in New York announces that the Matto Grosso telegraph line has been completed through to Goyaz, capital of the state of Goyaz, and the station there was formally opened August 29.

### An Injustice to the Rubber Shoe Manufacturers.

UNDER the heading "*Rubber Shoes Like Neckties*," the New York *News* publishes a paragraph doing great injustice to the manufacturers of rubber shoes. It reads:

Some of the rubber shoe makers at just about this season of the year get up a scheme that is equal in adroitness to that of the man who gets his scarfs made for nothing. The rubber men advertise for "Girls to learn to make rubber shoes," and promise to teach them the business in about six weeks. In the meantime the manufacturer has the girl's work for nothing and by the time the six weeks is past the season is over, and the knowledge she has acquired is of comparatively little use to the girl. In one respect, however, the rubber man is more generous than the scarf fiend. He generally boards the girls while they are learning.

The facts in the case are these: Good rubber shoe makers are almost always in demand, and are among the best paid of all girl workers. There are some learners, however, who never learn, or who when well taught are so careless that they spoil so many shoes that there is no profit in employing them. It is this class who circulate stories like the foregoing, and who are always complaining of ill treatment.

The paragrapher who is responsible for the statements quoted is one of that ilk who talk through the newspapers of "Rubber Trusts" and horrible cases of scalding from "melted rubber" while "pouring."

### The Fall Catalogue of the American Rubber Co.

THE American Rubber Co. issue an exceedingly neat catalogue with the opening of the new business year, which contains a *résumé* of last year's styles, to which are added all of the new styles in rubber boots and shoes that they have recently brought out. The pamphlet bears on its cover a cute representation of Puck standing in a dainty rubber shoe and being driven across the sunlit sea by the breezes that catch in the outspread skirts of the diminutive blue coat he wears. On the back cover is a picture of the completed plant of the company with its seven acres of floor room. Within the covers are arranged on the left hand of each page a representation of one of their styles of boots or shoes, while on the opposite page is a fac-simile of a letter of commendation from some large customer of either the American or the Eagle brands of goods. This method of placing the goods and the recommendations face to face is carried on throughout the catalogue. The styles embrace the special copyrighted names of the company, such as "Storm King," "The Blizzard," "Two Buckle Lumbermen's Shoe," "The Perfection Lumbermen's," "The Perfection Ontario and Huron Lumbermen's," Croquettes of various styles, snow excluders, men's imitation and strap sandals, "The Emperor High Cut Gaiter," "The Prince," "The Ivanhoe," "Women's Zephyr Croquette," "The Berlin Self-acting Alaska," and many others of names well known and names new to the trade. At the end of the book is a full price list of the goods of the American Rubber Co. and of the Eagle Rubber Co., and on the last page is a neatly arranged discount list. Published by the American Rubber Co., 60 Summer Street, Boston, Mass.



### Interesting Exhibits at the Boston Fair.

ONCE in three years the manufacturers and inventors of New England, or rather from "all over," gather together the products of their skill and thought and form them into exhibits at the well-known building of the Charitable Mechanics Association, Boston. At each fair are to be found exhibits of rubber goods that are full of interest, and many times they show an amount of enterprise and taste that is not excelled in any other line of manufacture.

The most attractive exhibit in the line of rubber goods at the Mechanics Fair this year, is that of the Boston Belting Co., which is situated near the left hand entrance of the main hall. Every conceivable thing in the line of mechanical rubber goods appears to be in that exhibit. The goods are arranged with exceeding neatness and care upon a series of narrow terraces or broad steps that rise from the rail where the observer stands and lead back to the wall of the building. Beginning at the bottom of the terraces are some huge rubber covered rolls, one of which is a white rubber pulp machine couch roller that must contain hundreds of pounds of rubber. Besides this, are shorter, thicker rollers for a variety of industries, and one that attracts a deal of attention is a huge hard rubber roller, polished until it is more beautiful than the handsomest ebony. On the next terrace above this are rolls of the various kinds of belting made by the company. The finish on these goods, the workmanlike manner in which they are made up, and the plainly written tags that indicate to the passer-by exactly what they are, are well worthy of imitation in any mechanical exhibit. For example, on the belting tags, "Friction Surface Belting," "Forsyth's Patent Seamless Belting," and a variety of other kinds are so plainly marked that he who runs may read. On the next two terraces are shown the various kinds of hose that the company make, and they are so numerous that it would take much time and space to catalogue them. The same neatness and finish appears in these goods that was so manifest in the belting, and extends itself even to the smaller goods that are grouped upon the crowning terrace. These are springs of all kinds, gaskets, hat bags, packing and soling, while against the wall are many varieties of mats and stair treads of such handsome design that they enhance the striking effect of the whole exhibit. One thing in particular that attracts much attention, is a model of a portion of a paper machine over which is run a huge rubber deckle strap. As this is an article of manufacture that the Boston Belting Co. have a special reputation on, its exhibition here produces a marked effect.

In the gallery above, near the main entrance, is the exhibit of the Elastic Tip Co., which is attracting the usual attention, very few finding it possible to pass without having at least a trial at the bright colored targets that hang on the opposite wall, and very many get so interested that a few sample shots are not enough, and they purchase one of the pistols either for themselves or the little ones at home, and put in their spare time at target practice.

To descend again to the main floor, we find the exhibit of C. J. Bailey & Co., proprietors of the Bailey Rubber Co.

This exhibit, while not covering as much room as some, has an excellent location and contains a variety of goods that attract a deal of attention. High up above, Mr. Bailey has placed one of the most gigantic rubber boots ever manufactured, and it serves as a good sign to those far and near that some sort of a rubber exhibit is there. Beside the variety of brushes for almost every purpose manufactured by this company, they have a very fine exhibit of clothing, with samples of Mackintosh cloth of all textures, designs and prices, and a large variety of druggist sundries.

An exhibit that provokes many questions and much comment is that of B. S. Hale & Sons, Malden, Mass., the well-known manufacturers of magnet, telephone and telegraph wires. In the rear of this exhibit is a sign, with a black velvet background, upon which, made of tiny coils of silver covered wire, is spelled out the word, "H-a-l-e." Below this are grouped coils and spools of silk covered magnet wire and picture cord wire in infinite variety. As these goods are covered with all colors of silk, they form an exceedingly pretty picture in their groupings. Several spools that one would guess had perhaps a few hundred yards of the fine wire that is coiled upon them, contain over six miles of that wire, which shows how fine is the work done. A portion of this exhibit is allotted to showing the Reidy Horse-shoe Pad, the patents of which are owned by B. S. Hale & Son. This horse-shoe pad at once attracts the eye of the horse lovers, as it is so arranged that it shows exactly how the shoe is placed upon the rubber cushion, and both together placed upon the horse's hoof to do away with the concussion that ruins so many horses' feet.

Another exhibit that will naturally be of interest to the rubber manufacturers, although not in the line of rubber goods, is that of the Mason Regulator Co., of Boston, which shows their reducing valves in great variety, their steam trap, air brake governor, and in fact, all of their specialties, which are too well known to need cataloguing. This exhibit is in Machinery Hall and has a competent man in charge, who not only explains how these various valves work, and for what they are adapted, but has the valves themselves cut in sections so that the whole of the interior working can be readily explained.

In the machinery department is also to be found the exhibit of the Waterbury Rubber Co., of New York, who have stocks of the Sphincter Grip Hose arranged in a pleasing manner and surmounted by their well-known card catalogues in red envelopes.

The Page Belting Co., of Boston, also have a fine exhibit on this floor, of general mechanical rubber goods, giving especial attention to belting. Their exhibit, however, is not entirely rubber, for they have various kinds of leather belting also displayed.

The Asbestos Packing Co., of Boston, have a mammoth glass cabinet on the main floor, in which is shown asbestos in all states from the fibrous rock to the carefully woven asbestos cloth. To even mention the scores of samples for different purposes that are here shown would be quite a task. In the front part of the cabinet, however, is some-

thing which should interest the rubber men particularly, and that is, the samples of the asbestos covering that goes on boilers, vulcanizers and steam pipes, to save them thousands of dollars worth of fuel every year.

One of the most instructive and artistic exhibitions in the fair is that of the Singer Manufacturing Co. This exhibit is divided into two parts, one-half being devoted to art work, where four machines, with skilled attendants do the most remarkable embroidery, rivalling the finest samples of hand work in Kensington, etching, crazy stitch, couching outline, scroll work and script, as well as applique in silk and crewel embroidery, and also arassene, chenille and tinsel. The second exhibit is one that will interest the manufacturer much more than this, for it shows the machines in working order, running at a high rate of speed on plain work that would be very similar to the stitching of gossamers or dress shields, or work of that kind. A smaller exhibit, also belonging to the Singer Sewing Machine Co., is one that shows the strong points of the Eyelet Button-hole Attachment. Here are four machines with their operators continually at work, showing the uses to which this attachment may be put.

#### Success of the Okonite Company.

AT a recent general meeting in London of the International Okonite Co., Limited, the chair was taken, in the absence of Lord Greville, by Mr. Samuel Pope, Q. C. The chairman stated that the whole of the balance of the share capital had been fully subscribed, without a single share having been underwritten; and all the debentures had been taken up excepting £15,000, which they did not now intend to allot until they required the money. Their managing director and the manager of the works had visited the United States since the incorporation of the company for the purpose of investigating the business and the technical working of the factory at Passaic, N. J., and to learn the special progress carried on there. In addition to the vendors' shares, the directors who formed the American committee had subscribed considerably over £60,000 in shares, paying for them in the ordinary way.

The title to the American factory had been examined and approved by their solicitors in New York; the whole of the purchase-money had been paid, and the property had been vested in the Central Trust Co. of New York, as trustees for the debenture-holders. Their managers, from personal inspection, were satisfied that the business was sound and lucrative, with every prospect of a large and continual increase, and that there was an immense advantage in having a factory both in New York and in Manchester. The business at Manchester had been taken over and paid for, and they had since acquired a plot of ground adjoining, upon which they were erecting a fire-proof factory for the manufacture of their specialty—okonite wires and cables; and the necessary machinery was well in hand. The works there were in full operation, manufacturing various classes of their insulated wires, and orders were coming in most satisfactorily. The scrip certificates had been issued;

and application had been made to the Stock Exchange for a special settlement and quotation, and the directors entertained no doubt that in a very short time this request would be complied with.

The Okonite Co. have taken permanent offices at the corner of Queen Victoria Street and Bread Street, London, E. C. Mr. H. B. Bourne, lately assistant with Professor Ayrton, has been appointed technical adviser. The company are, the *Iron and Coal Trades Review* reports, building other premises alongside the present works of Messrs. Shaw & Conolly, which they have acquired, and new and special machinery for manufacture of okonite cable is going over from their works in Passaic, N. J.

#### A Snug Fit for a Rubber Shoe.

EDITOR INDIA RUBBER WORLD:

Dear Sir:—I am not at all sure that you will stop to listen to a woman's wail, but I have seen your journal, and feeling that you ought to know all about rubber, if you do not know it all, I want to ask why it is that my rubber shoes wear out so rapidly? I am not one of those who do not know one make from another. I buy the best makes, and they do not last any longer than the seconds. What is the trouble? Very truly,

Miss L. J. K.

[The Editor of THE INDIA RUBBER WORLD is very glad to receive inquiries of this kind, particularly from the gentler sex, because they are the wearers of rubbers and depend on them far more than the gentlemen. We would suggest, therefore, that the next time this lady buys a pair, she be not only careful to see that it has the stamp of a reputable company upon it, but that it is a perfect fit to her shoe. A rubber that is poorly fitted cannot last, for there is a strain somewhere that in a very short time emerges into a break. This has been shown many times.]

#### The Test of a Rubber Coat.

RUBBER coats are often condemned because they are found damp on the inside after wearing. A little experimenting will show that this occurs as often on dry days as on wet days. The counterpart of this is found in the moisture on the outside of a filled water pitcher, or the scientific phenomenon of electricity passing through the most perfect insulator to another metal. The only way to test a coat is to place it over an empty pail and pour a gallon of water on the rubber side. In a water-proof garment, no moisture will appear on the other side.

THE directors of the Royal Baking Powder Co. have decided to spend an even half million dollars in newspaper advertising next year. No other American firm have had a wider experience in advertising, but they do not appear to be ready to give it up. It seems to have become a settled fact that the more judicious advertising a business concern does the more confidence it has in this method of attracting buyers.

THE Granby Rubber Co., of Granby, Que., after carefully testing the Micrometer Dial Gauge, manufactured by Webster Norris, of Malden, Mass., have adopted it for their mill and ordered six more of them.



# COLCHESTER RUBBER CO.

Geo. Watkinson, Pres.  
Colchester, Conn.

Chester H. Davis, Treas.  
28 Warren St., New York.

Factory at Colchester, Conn.

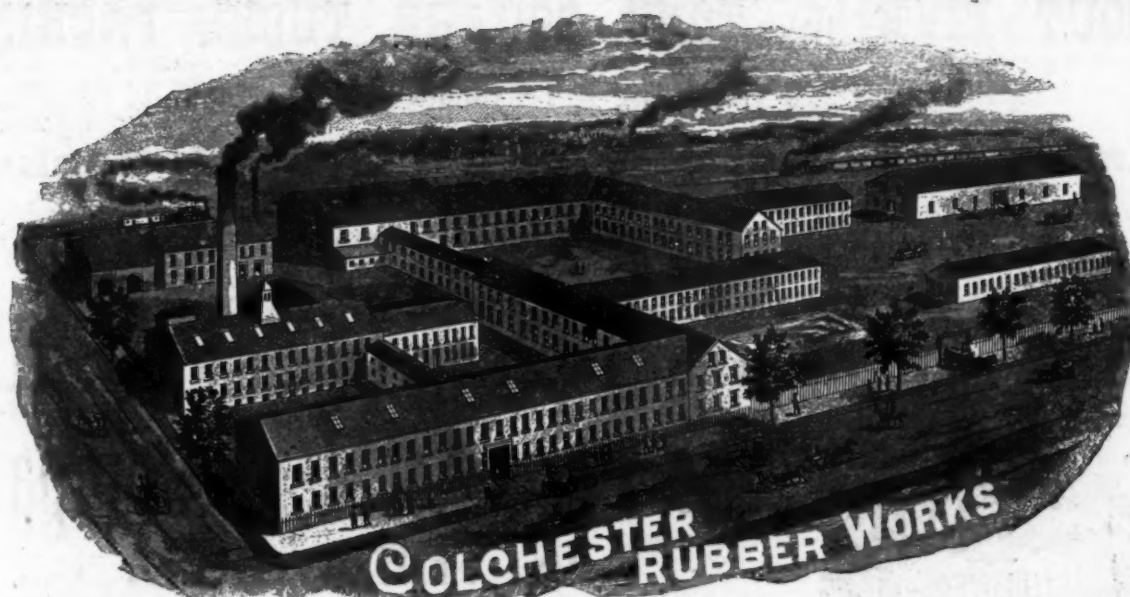
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Manufacturers

Rubber Boots and Shoes

ALL KINDS OF

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Rubber Boots for Farmers, Miners, Sportsmen, Watermen and others.

Rubber Shoes of all Styles.

Warm Lined Overshoes and Gaiters for Cold Climates.

Canvas Top, or "Tennis" Shoes, for Summer.

**NEWEST STYLES. HIGHEST QUALITY.**

AT LOWEST MARKET PRICES FOR FIRST QUALITY GOODS.

Send for Catalogue and Price List.

**COLCHESTER RUBBER CO., <sup>Box 1.</sup> Colchester, Conn., U.S.A.**

All "COLCHESTER" Shoes are packed, each pair in Separate Cartons, and all have the "ADHESIVE COUNTERS" to prevent slipping off at the heel.

# FOR SALE AT A SACRIFICE !

## 100 Rolls Rubber Belting

All sizes and plies at 12c. per pound.      Samples submitted.

—ALSO—

## ABOUT FIVE (5) TONS SQUARE TUCKS PACKING.

Sizes 1 1-2, 1 1-4, 1 1-8, 1, 7-8 inches at 8c. per pound.

## Also a Large Lot of Fibrous and C. I. Gaskets

Assorted sizes, at 12c. per pound.

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Chief Offices in U. S., Boston, Mass.

Endicott & Macomber, Managers and Attorneys.

FOR INFORMATION AND RATES APPLY TO

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New York: Edmund Dwight, Jr., 31 Cedar St.

PHILADELPHIA: Totten Paulding, John G. Hooven,  
416 and 430 Walnut St.

CHICAGO: Geo. A. Gilbert, 238 and 239 La Salle St.  
St. Louis: F. D. Hirschberg Bro., 190 N. Third St.

AGENTS IN ALL THE PRINCIPAL CITIES.



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HODGMAN RUBBER CO., No. 459-461 Broadway, New York; No. 32 School Street, Boston.  
IDEAL RUBBER CO., Brooklyn, N. Y.  
METROPOLITAN RUBBER CO., 649-651 Broadway, N. Y.  
TYER RUBBER CO., No. 50 Bromfield Street, Boston.

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EUREKA FIRE HOSE CO., No. 13 Barclay Street, New York.

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NEW YORK RUBBER CO., New York.  
NORTH-WESTERN RUBBER CO., No. 141 Lake St., Chicago, Ill.  
REVERE RUBBER CO., Boston, Mass.  
STAR RUBBER CO., Trenton, N. J.  
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NATIONAL IRON WORKS, New Brunswick, N. J.  
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NORWALK IRON WORKS Co., South Norwalk, Conn.

JOHN ROYLE & SONS, Paterson, N. J.  
SAFETY CONSTRUCTION Co., Nos. 45-47 Wall Street, New York.

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BOSTON WOVEN HOSE Co., Boston, Mass.  
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HOME RUBBER Co., Trenton, N. J.  
LAKE SHORE RUBBER WORKS, Erie, Pa.  
NEW JERSEY CAR SPRING AND RUBBER Co., Jersey City, N. J.  
NEW YORK BELTING AND PACKING Co., New York.  
NORTH-WESTERN RUBBER Co., Chicago, Ill.  
STAR RUBBER Co., Trenton, N. J.  
TRENTON RUBBER Co., Trenton, N. J.

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CHELSEA WIRE FABRIC RUBBER Co., Chelsea, Mass.  
CLEVELAND RUBBER Co., Cleveland, Ohio; No. 55 Warren Street, New York.  
ERIE RUBBER Co., P. O. Box 456, Erie, Pa.  
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## Working Up in a Rubber Factory.

BY A FORMER SUPERINTENDENT.

## II.

WHEN I first went into a rubber mill, I had gone in with the firm conviction, which is to this day shared by the world in general, that rubber was melted and poured into the moulds. Indeed, I am inclined to think that my mother told me that this was so, and warned me to be careful that the red hot rubber did not fly out upon me and burn me. In fact, I thought I was going to work in a rubber foundry. It was therefore with no little amazement that I finally awoke to the fact that rubber was made up into a dough and moulded mechanically. The appreciation of this was the beginning of my real interest in the rubber business. To tell the truth, the first two or three weeks that I was in the mill, I didn't care a snap whether school kept or not, and paid very little attention to the work. When the foreman had his eye on me, I was eager and attentive and did my best. When his back was turned, I was skylarking with the rest of the boys, with whom I got on fairly good terms after having one or two quite serious fistic arguments with them in the yard at noon hour. Just as I began to get interested in the making up of rubber goods, and had a yearning to know what all the different adulterants were that I saw being mixed into the massed rubber, a change came in the policy of the firm. As I look back upon it now, I can see that it was their awakening to the fact that the business was a secret business, and in order to keep it a secret that the men not needed in the compounding room should be kept out of it. The grinding room, therefore, was parted off from the rest of the mill, and we all had strict orders not to go in there unless we could give a good excuse for so doing. As the help up to this time had had the run of the whole factory, this was a particularly hard rule to enforce and many of us had to be driven out of the grinding room almost every day, and to do us justice, I must say we had very specious excuses for our presence there. This secrecy that then surrounded my chosen calling was to me a wonderful spur. I began to feel that it would be worth my while to find out what that white powder was that was mixed into the white stock. I had pretty well made up my mind that it was white lead and, by sizing up the batch of rubber and the amount of compound, I believed that I could make a white rubber compound. I therefore pilfered a small piece of massed gum, went to a hardware store and bought some dry white lead with which I started in on my experiments at home. By heating the rubber and stretching it out and working in the lead, I managed to get it pretty thoroughly into the compound; but, try to bake it as I would, it was utterly impossible for me to make it vulcanize. I had heard nothing at all about Goodyear's discoveries and did not even know that sulphur was used for vulcanizing, and therefore did not know what the trouble was. I well remember, about this time, riding home from the factory one evening with a farmer acquaintance of mine who asked me if we made Goodyear's goods. I told him frankly that

I did not know, that I did not know who Goodyear was, and asked what kind of goods he used. I remember the farmer smiling indulgently at my ignorance, and he said that Goodyear was the man who invented the sulphur cure. This was news to me, and I told the farmer that we did not use that cure, that we had a process of our own; but the thought of sulphur stuck in mind, and one day when I found the superintendent good natured I asked him if we used sulphur.

"What do you want to know for?" he asked, looking at me curiously.

"Oh, nothing, I only thought I'd ask," I said.

"Look here, bub, has anybody been questioning you about what we do in this factory?"

"No, sir," said I very truthfully.

"Well, if anybody asks, tell them you don't know."

"Yes, sir," I said very meekly.

"Look here, bub, you're a bright sort of a youngster if you've a mind to be, and there's going to be a good chance for any one who learns this business. You do your best and I'll help you all I can, and one of these days you may be able to earn two or three dollars a day here."

I was very much encouraged at his tone and promised him faithfully that I would do my best. When I left him, I really believed that I was about to pitch into the business and in a few months' time to master the whole of it. An unforeseen circumstance, however, changed his attitude toward me within a brief half hour. Now that there were more rooms on the ground floor, it gave the boys a much better chance to do their skylarking. It was customary for any boy who went to the engine room to get a piece of waste, soak it in water, and as he passed through the rooms to project it with all his force at an unlucky boy who was off his guard. As I walked away from the superintendent, and passed into the room, I received one of these swabs full in the face, and caught a glimpse of my assailant, a short, chunky youngster whom we called "Red Tim." Forgetting my resolutions, I at once made up my mind that I would get even with him. I therefore caught up a basin of dirty water and slipped around to the second door, through which I was morally sure Tim would return to see how his shot took effect, and lay in waiting for him. True enough, a minute later I heard his peculiar, soft step, and just as he entered the door, I dashed the contents of the basin full in his face. Imagine my horror when, instead of Tim, appeared the superintendent, whom I had thoroughly drenched. The words that he spoke to me just then I will not attempt to transcribe, in fact, they were so thoroughly red hot that I believe, even if set in cold type, they would burn a hole through the paper. Suffice it to say that he took me by the nape of the neck, marched me out of the room and discharged me then and there. As I was going out through the office, very much crestfallen, I met the proprietor, a stout, high-tempered old gentleman, but one whom all the boys liked.

"Where are you going, Tom?" he asked.

"Home, I'm fired out," I replied.

Now the old man liked me because I stopped his horse when he was meandering down the street one day without

a driver, so he said, "Well, you go back in the mill and I'll see the foreman and make it all right."

So back I went to my work, and I suppose he saw the foreman, for nothing more was said on that head, and I don't really think that, after he had dried off from the sudden drenching that I had given him, he really cherished any ill will toward me.

About a week after this, as I remember it, the superintendent called me into what was known as the pattern room, and asked me if I would like to go into some special work. I told him I was ready for anything, and as I knew how to draw pretty well, he set me at work drawing and making some paper patterns for something that I could not see the use of. In a little while he brought in some sheets of duck that had been brushed over with rubber cement and then had a sheet of thin rubber spread upon them. These he folded over until he made them into narrow strips, then riveted them together with copper rivets and, rolling them up in a solid roll, put them in a vulcanizer. When the job was finished, I saw what he was trying to do and that was to make a rubber belt. How well I remember that first crude, awkward belt. I doubt if it could have been run on any pair of pulleys on the face of the earth if he had tried to run it. When it was finished the proprietor came out and looked at it and shook his head.

"It won't do," he said, and then the work was all tried again. Finally it occurred to the superintendent that the duck might just as well be run in rolls and that there was no need of riveting the short lengths. Then it occurred to him further that a certain amount of stretching must be gone through with to get all the stretch out of the belt. Another thing that came up before a great while was the question of the dryness of the duck, as he discovered accidentally that when it was damp the rubber did not stick. The duck, therefore, was run over a series of steam pipes before it was coated. These, and many other problems were met and wrestled with very patiently before the first good belt was finished. In mills now-a-days this sort of apprenticeship is never gone through with, but in those days, when there were only two or three other factories making belting, and when it was with them a secret business, when our people could not hire from them their skilled men for love or money, and I must say they conscientiously tried, the whole business of rubber belt making had to be learned, and the only way to get at it was to go ahead and blunder and blunder until one blundered right. The time came, however, when we, that is, the foreman and I, turned out a mighty good belt. We got the business down fine, so that we could make up a belt, that would not contain a blister from one end to the other, a belt in which was used the best of fine Pará rubber, which we bought for less than fifty cents a pound, and which was loaded very lightly compared with many good compounds in use to-day. It took a long time before we got so that we could make a belt that was at all pleasing to the eye. I think the prettiest belts that we ever made were those that had a sheet of lead foil spread over the face of the rubber, over which the belt was carefully rolled.

In order to square the edges, we used to take this roll of belting, and, laying it upon its side in a small steam press, set the two platens close enough together and give the edges just cure enough to preserve their shape. The roll was then taken out and put in a steam heat and the cure finished. When the sheets of lead foil got worn or torn, they were sent back, melted over and run into fresh sheets for further use. This old-fashioned steam cured belt, with its rich compound and careful finish, certainly was an exceedingly strong belt. I wouldn't like to say that it was better than the belts made to-day, for I have the greatest of respect for improvements made in machinery and progress in manufacturing processes. I do think, however, that there is a tendency when curing belts in one of these huge belt presses to turn on too quick and strong a heat in order to hurry the cure, thereby taking a certain amount out of the wear of the goods. I am, however, well aware that some of the wiser manufacturers are careful to have long, slow heats, and that to the cure as well as to the compounding they lay much of their success in this line of manufacture.

#### Mortality in the Rubber District.

"AN interesting census has recently been taken in the Purús River district," says the Pará correspondent of the *Rio News*, "one of the most important regions for the extraction of rubber, which reveals a shocking result. Basing the estimate on the number of immigrants, chiefly from the neighboring states who have gone to that district during recent years, it appears to have been considered that its population consisted of rather more than 40,000 souls. It has, however, been reported, on what is said to be reliable authority, that the number existing—including children—is only 16,000 souls. The mortality, always considerable, and the most lamentable feature in connection with the production of rubber, is described as having been stupendous last year, especially on the Acre River, where the banks are plentifully sprinkled with crosses, marking the ravages of fever and disease. If this has been the fate of native immigration, what may be expected for Europeans should they ever venture to these parts?"

Commenting upon this letter the *Rio News* says: "We ask our exchanges—in the interests of humanity—to give currency to the remarks of our Pará correspondent as to the mortality in the rubber districts. A company is proposed to exploit the rubber industry, and as corporations have no souls, it should be clearly explained that for foreigners to go into certain regions of the Amazon Valley is sheer suicide."

THE August exports of rubber, all qualities, from the Amazon valley amounted to 2,012,797 pounds, of which 820,894 pounds went to Europe and 1,191,903 to the United States. The total shipments in August, 1889, were 2,244,000 pounds, and in August, 1888, 2,398,000. This does not appear a very promising beginning of the rubber movement for the new business year.



## Letters to The Editor.

## Wanted: A New Kind of Rubber Coat.

EDITOR INDIA RUBBER WORLD: Has it ever come to your notice that horse car drivers in violent storms, almost without exception, wear their rubber coats, "hind side before"? This of course is because they are brought face to face with the storm, and however carefully the coat may be buttoned, the wind and rain find their way through. Cannot some inventive genius in the rubber clothing business design a coat for car drivers and teamsters in general, that will either button up and down the side, or even button in the back, and will be a good fit, and one in which a driver can breast any storm?

W. J. LYONS.

Boston, November 1, 1890.

## A Very Excellent Suggestion.

EDITOR INDIA RUBBER WORLD: While riding on one of the electric cars running out of Boston recently, I was talking with the conductor about severe weather, and he advocated an idea that strikes me as one of interest to manufacturers of rubber clothing. He is exposed to all sorts of weather, and is obliged to dress very warmly. His custom is, therefore, in the fall to wear two vests, and as the weather grows colder, over these wear a knit jacket, and over that of course a heavy coat. He was speaking of the warmth of Mackintosh coats and said that he did not see why a waistcoat could not be made of light double texture goods with a thin layer of rubber between them that would be just as warm as two vests and a knit jacket, and yet be far less cumbersome. The thought struck me as a good one, and I very gladly give it to the readers of THE INDIA RUBBER WORLD for whatever it may be worth.

D. M. L.

Boston, October 30, 1890.

## A World's Fair Suggestion.

EDITOR INDIA RUBBER WORLD: I have read with considerable interest your editorials upon the question of the World's Fair, which is to be held in Chicago in 1893. The year 1893 looks some little distance off, and yet if the rubber manufacturers are to get ready for a united exhibit at that time, it is near enough in all conscience. A thought has struck me, in connection with this which may be valuable and may not. As I do not wish you to publish my name after this, I am going to venture to give it to your readers, and they may judge it according to its merits, and whatever their verdict may be, it is not going to hurt my feelings one whit. This of course is an age of advertising novelties. Why wouldn't it be a good idea in one part of the exhibit to erect a few fac-similes of rubber trees, to have concealed within their trunks small reservoirs of a milky white fluid; then to have a number of attendants, dressed in the artless fashion of the Amazonian rubber gatherers, and to have them tap the trees before the interested audience and draw out a stream of what would be presumably rubber sap. To be sure, in order to have this effective, the stream would have to flow rather faster than rubber sap is supposed to flow into the clay vessels, but it is possible that any criticism of this could be overcome by naming our tree the *Hevea Chicagoensis*, and to explain to the general public that it produces the sap with the same rush and hurry that everything is produced in Chicago. In offering this to the rubber manufacturers, I wish to state that I am perfectly sane and that I am more than half in earnest, although I am not sure but it would take a Barnum to successfully carry out a scheme of this kind.

ELASTIC CUSS.

## Dedication of the "Alice" Mill.

THE new mill of the Woonsocket Rubber Co., known as the "Alice" mill, of which THE INDIA RUBBER WORLD gave an illustration some months since, was formally dedicated on Thursday afternoon, October 23d. The occasion was made the scene of general rejoicing, and a fine banquet being prepared, to which were invited some five hundred prominent people from Providence, Woonsocket, and neighboring cities. Nearly all responded to the invitation, which included Governor John W. Davis and staff, who by their presence and their speeches aided in making the festivity memorable and enjoyable. A portion of the huge factory room on the second floor of the main building, being partitioned off by bunting, was used as a banquet room. This whole hall was beautifully decorated on wall and ceiling with bunting, flags and streamers. On the wall at the rear of the platform was an American flag, flanked on either side by two Irish flags. Two beautiful silk flags appeared on the walls which were especially made for this occasion and sent to President Banigan by a New York lady. In the centre of one of the flags was the word "Alice," the name of the president's mother, in whose honor the factory was named. Out-of-town guests were carried from Providence to Woonsocket by special cars, which, on reaching the station, were detached and drawn down the spur track to the works, leaving the visitors right at the door of the factory.

After the dinner came the toasts. Joseph Banigan, Esq., introduced the toastmaster, L. W. Ballou, LL. D. The toast, "The City of Woonsocket," was responded to by Hon. D. B. Pond, Mayor of Woonsocket; toast, "Rhode Island," responded to by His Excellency, John W. Davis, Governor of Rhode Island; toast, "Woonsocket Business Men's Association," response by James Murray, president of the Association; toast, "The Erection of the Alice Mill," response by James P. Connelly, superintendent; toast, "The Development of Woonsocket," response by Alderman John J. Heffernan; toast, "The Name of Woonsocket Abroad," response by W. S. Ballou, selling agent of the Woonsocket Rubber Co.; toast, "The Press," response by L. B. Pease, of the *Woonsocket Reporter*; toast, "The Woonsocket Rubber Company," response by Joseph Banigan, president of the Woonsocket Rubber Co.; toast, "The Ladies," response by Charles F. Ballou.

## A Booklet for Steam Users.

WITH the fall boom in business comes the neat fawn-colored catalogue of the Mason Regulator Co. The Mason Air-brake Pump Regulator, illustrated and described, is the first attraction to steam users, and when, after the description, the company refer by permission to the Boston and Albany; Pennsylvania; Maine Central; Chicago, Rock Island and Pacific; and other railroads, it looks as if this little regulator had already gotten itself pretty well established in the particular sphere it fills. On the next two pages are illustrations of the Mason Reducing Valve, one showing an outside view, and another a cross-section cut that shows the whole interior of the valve. This valve is so well known to the rubber trade, where it is used for reducing boiler pressure, steam-heating coils, drying rooms, vulcanizers, etc., etc., that we forbear a detailed description of it. The next two pages illustrate and describe the Mason Pump Pressure Regulator, which is a very perfect mechanism in its way, and bears the endorsement of large manufacturing concerns. Turning over a page, the Mason Steam Damper Regulator is described and illus-

trated, the description having an interesting little addendum in the shape of recommendations from the Standard Oil Co., from Baker's Chocolate Mills, the Pennsylvania Railroad, and the New York World. Another page brings us to the Mason Pump Governor, of which there are three cuts and a brief business-like description of the same. On the next two pages are shown the Mason Balanced Valve and the Mason Lever Valve, with description and price list. On the last reading page is shown the Mason Locomotive Reducing Valve, which interests the railroad men to such an extent that many of the leading roads in the country have adopted them for their locomotives. Information as to this, and the price list of different sizes, is given on this page. The inside page of the cover contains the Boston cable address of the Mason Regulator Co. and their telegraphic code for different goods, sizes, and methods of shipment. The outside back cover is adorned with a picture of the new factory of the Mason Regulator Co. at Dorchester, Mass., which, by the way, is one of the most complete plants for steam regulating specialties in the country. This catalogue and price list is published by the Mason Regulator Co., 10 Central Street, Boston, U. S. A., and will be sent to any one interested in steam regulating or steam saving.

### Protection for Employees.

IT is a well-known fact that manufacturers in general are many times forced to pay large sums to workmen who are injured in their factories, even though in many cases the accident comes from the carelessness or ignorance of the employé. The rubber manufacturers are no exception to this rule, and with their large plants and great forces of men hardly a week passes but that some workman is injured and some settlement made with him and his family. With the increase of manufacturing, and the consequent increase of accident has sprung up an insurance against accidents for the benefit of employers, which has become exceedingly popular. To-day property owners are looking on accident insurance much as they do upon fire insurance, and are regarding its cost as one of the necessary expenses of conducting business. Ten years ago such a thing as elevator insurance was entirely unknown, and yet since elevator accidents have become so frequent—and there have been several fatalities within the last month—this has also grown to be quite a feature. The company that is doing more of this business than any other one in this country, and that has already insured numbers of large manufacturers, is the Employers' Liability Assurance Co., of which Endicott & Macomber of Boston are the general agents. A line to them will secure the fullest information on this matter and the quotation of rates, which are so low as to make it within the reach of any concern.

### Automatic Protection Against Fire.

THE Kane Sensitive Automatic Sprinkler, in use already in such a large number of establishments for the sake of the protection against fire, has been adopted recently by the Pennsylvania Railroad Company. The claims in behalf of this sprinkler, two views of which are given in accompanying cuts, are its simplicity of construction, its certainty of automatic action, its method of distributing water (by means of the revolving turbine), its being absolutely non-corrosive (copper and brass being in contact at the valve seal) and in the compoundment of levers, by which the strain is practically removed from the

solder joint, and the possibility of being burst open by water pressure in the absence of fire entirely obviated.

William McDevitt, Inspector of the Philadelphia Fire Patrol, reports officially to the head of his Department: "The efficiency of this system of fire extinguishment depends largely upon producing a moist atmosphere; by a division of the water into fine spray, which object is fulfilled in the Kane Sprinkler." The proprietors of a number of mills in Philadelphia (where this sprinkler is manufactured by the Kane Automatic Fire Extinguisher Co.) report a reduction in the cost of their insurance since beginning its use.

It may be of interest to rubber manufacturers to know the Kane Sprinkler has been in use for some time by Messrs. Brook, Oliphant & Co., proprietors of the Globe Rubber Works, Trenton, N. J., and that they express the highest satisfaction with it.

### Gauging Moisture in the Heater.

"I WISH I knew how much moisture there is in my heater at this minute," said a prominent manufacturer. This manufacturer knew when the air felt damp there and he knew when the air felt hot. He did not, however, depend upon the feeling to tell him when it was hot enough to vulcanize his goods. On the contrary, he was very careful to use the very best of thermometers. He did, however, depend upon guess work as whether there was a great deal or a very little moisture in his dry heat. Almost every time there was but little, but occasionally there were damaged goods, and conditions that he



could not account for. That was why he wished to know how much moisture was present; in other words, what the humidity was. Probably in the hurry of his business it had never occurred to him that such an instrument as the Polymeter had been invented, or that that instrument determined accurately the humidity, the vapor pressure, the dew point and the temperature. For further particulars on this point, and on all points that take in the measure of temperature, it would be worth while for that manufacturer and others to correspond with Aug. Neubeck & Co., 111 Nassau Street, New York.

THE question has been asked the Editor of THE INDIA RUBBER WORLD quite frequently of late whether the increased price of subscription for the paper was due to the rise in price of crude gum. The answer to that is, yes.

WE have in our possession a two-ounce leaden bullet, battered and worn, that A. Morton Hayward brought with him from the battle-field at the close of the war. Mr. Hayward belonged to the Seventh Massachusetts Volunteers, and came very near going as deep into the rubber business as any one man. He was apprenticed to Nathaniel Hayward when the Haywardville Rubber Co. was in existence, and had nearly learned the business when he decided it did not agree with his health, and left, entering another calling. He is to-day one of the largest builders in this part of the country, and is located at Easton, Mass., and is a brother of J. Francis Hayward, the well-known rubber man.



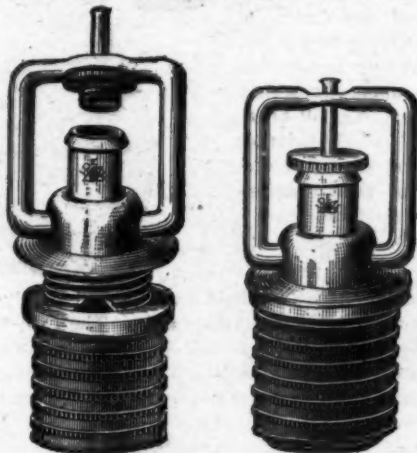
## New Goods in the Market.

## TO MANUFACTURERS AND PATENTEES:

It is our aim to embody in this department descriptions and illustrations of all the latest novelties introduced in the market, to the end that jobbers, retailers and buyers of rubber goods generally may look here for information as to everything new that each month or season brings forth. Manufacturers and patentees are, therefore, most cordially invited to co-operate with us in making the department as complete and attractive as possible—the distinct understanding being that no charge whatsoever, either direct or indirect, will be made for these publications. Our reward will come through giving our readers valuable information; and that will be reward enough if manufacturers but give the information freely and in all cases at the earliest practicable moment.

In forwarding descriptions of new goods, be careful to write on one side of the paper only; be brief, but always write enough to give the buyer a clear idea of the article you offer; give your full address, plainly written; and in all cases send a small illustration or wood cut if you have one.

**T**HE Ideal combination stopper manufactured by the Ideal Rubber Co., No. 1 Adams Street, Brooklyn, N. Y., and used by them in connection with their combination water bottle and fountain syringe is so constructed that it is unnecessary to remove it from the bottle. By means of a thread a few turns of



the stopper runs it out so that slots provide ample openings for the passage of water. A nozzle on top is also provided with a screw so that it may be opened as desired and this is fastened to the handle of the stopper so that it cannot be lost.

—The Dwight Roberts' sanitary wash basin shell will do much to correct the faults of poor plumbing. The shell is pro-



vided on the inside with a hook that is fastened through overflow holes which being a little short draws the shell tightly

against the bowl. In the bottom is a hole in which rests a wooden ball. A wire screen acts as a guide to keep this in position. When the water rises in the bowl the ball is raised and the overflow goes on as though the shell were not in



position, but when the gas rises in the pipes and presses upon the inside, the ball is forced more and more firmly into the opening thereby stopping it up effectually. Address, Mr. Wm. V. Russ, 28 Vesey Street, New York, for further particulars.

—The number of toys and games that can be manufactured



from celluloid is innumerable. One of the latest of the novelties that is finding special favor with the little folks is the celluloid singing top. It is made up in a variety of colors that are so beautifully blended as to give the impression that the whole toy is carved from some exquisite material somewhat akin to mother of pearl, only far prettier. The combinations and colors are infinite in variety, and the finish of the toy is absolutely perfect. Manufactured by the Celluloid Novelty Co., New York.

—A new belt that has a decided advantage over the ordinary rubber belting, is that called the "No Seam Belt." It has been mentioned once before in the New Goods columns of THE INDIA RUBBER WORLD, but not illustrated. The cuts herewith give a more graphic account than words can of the differences between the old style and the No Seam. It is just what it pretends to be, it has no seam



in the centre, and therefore cannot rip open, and can be run either side next to the pulley. This alone is a definite advantage, for when one side is worn out it can be changed, and is for the time being practically a new belt. It is made of the best duck and Pará rubber and has already become a very

popular seller. Manufactured by the Boston Woven Hose Co., Boston, Mass.

—The Butler Hard Rubber Co. of New York, have brought out a brand of combs that well merits the name they have given it on account of its tendency to remain a unit. They not only warrant that with fair and reasonable use their "Hercules" combs will fulfil the expectation the name implies, but agree to replace any comb bearing this stamp, which may be broken in twelve months from the time of purchase.

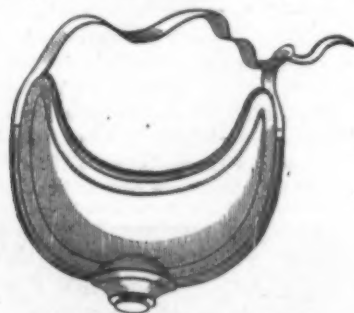


—The Dwight Roberts Specialty Mfg. Co. of 28 Vesey Street, New York, are manufacturing a face bag and throat bag by means of which hot water may be easily applied to the parts of



**FACE BAG.**  
**PRICE ONE DOLLAR.**

the face and throat that are affected by colds, neuralgia, diphtheria and similar troubles. The face bag is made in two sizes and is oval in shape. The throat bag is curved so as to fit the throat closely. Both are supplied with straps to hold them



**THROAT BAG.**  
**PRICE ONE DOLLAR & FIFTY CENTS.**

in position. They are made of Pará rubber and are free from any deleterious matter. Further information may be obtained by addressing Mr. Wm. V. Russ, sole agent, at the address given.

—The edge of a belt, particularly a rubber belt, is subject to a great deal of wear. Especially is this so where an iron shipper is used. To overcome this difficulty, the Chelsea Wire Fabric Rubber Co. have patented a protected edge belt that will wear out a shipper before it can be started. During the process of manufacture of this belt a machine designed par-

ticularly for the purpose sets a series of metal buttons into the duck and rubber in such a manner that when the plys are folded up, cemented together and put through the press to be finished, these metal protectors appear in a continuous row along the edge of the belt. As they are made of steel, they have a remarkable amount of wear to them, and in no case has a belt furnished with these protectors frayed at the edges or split open between the plys. Manufactured by the Chelsea Wire Fabric Co., Chelsea, Mass.

—Mr. John A. Scollay, of 74-76 Myrtle Avenue, Brooklyn N. Y., will send to those requesting it all desired information concerning the use of his improved putty bulb for glazing purposes. As the illustration shows, the article consists of a rubber bulb with a spout attached. No. 1 is the machine ready for use. No. 2 is a large screwed opening, with short spout attached, through which the bulb is filled by suction. When this is unscrewed the inside of the bulb can easily be cleaned. No. 3 slips over No. 2 after the bulb is filled. It is then ready for use. A small brush is attached which extends over the end of the outlet to secure an even distribution of the fluid and leave a perfect finish.



—And now we have a foothold for rainy and muddy weather which strikes one as the ideal of perfection. The Veto, manufactured by the Boston Rubber Shoe Co., has a long shank that becomes narrow toward the heel. The opening is thus brought nearly or quite to the height of the heel of the shoe and the foot-



hold made to fit the shoe closely. It is thus made possible for the wearer to step into water without its entering. As the Veto embraces all the favorable features of the old styles together with this great advantage it is sure to be very popular.



—With the exceeding interest that is to-day shown in outdoor sports, particularly lawn tennis, one cannot but notice of how much use rubber is in this sport. For example, the handle of the old-fashioned tennis racquet was wound with tarred string,



or something of that kind, to keep the hand from slipping. To-day an arbor of corrugated rubber is slipped right over the handle and not only allows one to get a good grip upon it, but by a certain amount of "give" is said to be helpful to the player in getting the peculiar knacks of the game. We illustrate one here, manufactured by Horace Partridge & Co., Boston, Mass., which is said to be of the most popular pattern.

—A progressive rubber firm in Boston is asking a question that is interesting the school children exceedingly, and is one that gives them quite a little lesson in natural philosophy.

The question is here pictured, where a lady, presumably a teacher in a school, asks what two laws are illustrated by the clinging of this rubber tipped arrow to the target. The ordinary observer, by the way, is very apt to think that the rubber tipped arrow has some sort of barb in the end which sticks into the target and holds the arrow there. This, however, is not the case. The end of the arrow is a little vacuum cup. When this is shot against the target, the law of rebound attempts to urge the arrow to leap backward from it. At the same time the vacuum cup has hit the target a smart blow, and the air being forced out, there comes into play the second law, that of atmospheric pressure, which in every case is stronger than the law of rebound, and therefore the arrow holds its position. The questions are propounded by the Elastic Tip Co., of Boston, and are being answered with a great deal of interest by children, and even their elders, as has been proved by the phenomenal sale of these goods.

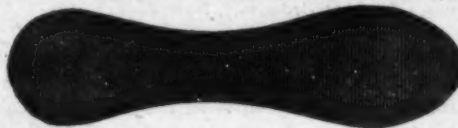


—An article that will be appreciated by sewing machine operatives wherever used is a corrugated rubber treadle mat. It serves to keep the feet firmly in position without any lost energy in that direction on the part of the operator. A similar



mat for a dental engine will prove even more useful because of its allowing the dentist to concentrate his attention on the deli-

cate operations in the mouth. The mats are securely fastened to the treadles by means of legs which are forced through



openings in the treadle. These mats can be made for any treadle by adapting the positions of the legs to the openings in the treadle. Further information may be obtained by addressing C. S. Wardwell, 35 West 38th Street, New York.

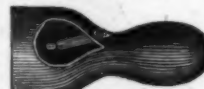
—For numbers of years past the cork sole in leather goods has been growing in favor, but the thought of it in rubber goods is comparatively new. The Woonsocket Rubber Co. are the patentees of what is known as the "Cork Sole Rubber Boot," which is said to overcome many of the objectionable points of the ordinary boot, for it is an exceedingly comfortable article to wear, and seems to have almost entire freedom from the troublesome "drawing" that rubber footwear is apt to include in.

—Mr. Walter F. Ware, of 70 North Third Street, Philadelphia, has placed on the market a nipple, intended to prevent colic in children.



PAT'D. APL. 10-1882.

It is provided with a valve, A, as seen in the cuts. As the milk is drawn from the bottle the air enters the valve, and, passing in, presses open the slit at B, and enters the bottle to relieve the vacuum. Nursing thus becomes easy. Consequently there is no hard drawing to cause the child to swallow air. Mr. Ware uses the name "Mizpah" to designate his valve, nipples and fittings.



PAT'D. APL. 10-88.

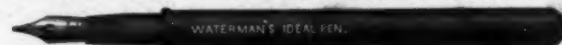
—The manufacturer of druggists' sundries who can make a bed-pan that shall satisfy those most exacting critics, the medical men, may well consider it a triumph.



DAVOL RUBBER CO.

One that has many points of excellence and is growing in favor is the style here shown. The special point in this aside from the excellence of the material and the care in finishing it, is the broad discharge pipe. This allows the pan to be thoroughly cleansed, while if the outlet were simply an ordinary rubber tube the chances are that it would become foul. Manufactured by the Davol Rubber Co., Providence, F. I.

—Waterman's Fountain Pen is illustrated here not so much on account of its newness as for its genuine merit. Its parts are all made of hard rubber. The flow of ink from the reservoir to the pen is caused by capillary attraction, the ink passing down through fine fissures to the pen, while the air passes in between the pen and the feed bar to take its place. The



hard rubber is incorrodible, so that when a gold pen is used there is nothing that can be affected by the ink. With each pen and holder is given a certificate, which warrants it and guarantees it to give satisfaction. It also contains a license

under the patents, which protects the user of the holder from all claims for infringements. The pen is made by the L. E. Waterman Co. of 155 Broadway, New York.

—A very neat parody on that classic of childhood, "Mary's Little Lamb," was lately printed, which sung the virtues of Parker's Arctic Sock. Told in cold prose, the merits of the article are these: It is made of a knitted fabric, with a heavy carded wool face, which is very warm and absorbs the perspiration. The socks can be taken out of the rubber boot every night and dried, thus making the boot comfortable the next day. The fact that tens of thousands of customers use the sock proves that the closing verse of the poem is not overdrawn:

Then here's to Mary and her lamb,  
Whose history here is told;  
And here's to Parker's arctic sock  
That's worth its weight in gold.

The sock, not the lamb, is sold by John H. Parker, 103 Bedford Street, Boston, Mass.

—A patented invention, of Mr. John H. Ricketts, is a neat and simple form of hat tag, adapted for attachment to the sweat-band and designed to bear the wearer's name and residence or other information. On the reverse side is space for date such as would be needed in ordering a duplicate. The tag is preferably made of celluloid or rubber, with rounded corners. It is fastened to the sweat-band by a pivot pin which passes through an eyelet on the centre of one side. The tag may be turned downward beneath the sweat-band, as shown in dotted lines. Messrs. C. W. Findley & Co., of Philadelphia, are agents for this tag.

—A new hard rubber atomizer that is simple, neat and attractive, is the Tyrian No. 18. It is a continuous spray atomizer, with a hard rubber tube, and the price is way down. A



bit of information that shows the superior finish of these atomizers is the fact that the hard rubber tube is not only pol-

ished on the outside until it is a thing of beauty, but the whole interior of the tube is just as carefully finished and polished. Manufactured by the Tyer Rubber Co., of Boston, Mass.

—Two years ago it was prophesied that the Mackintosh was the coming garment, and the prophecy has been amply fulfilled. To-day the trade in American-made Mackintoshes has reached very large proportions, and there are employed in the designing of these garments, and in their make-up a large force of the most skillful rubber help in the country. No garment that the rubber manufacturers have ever handled has paid so well for the thought and care put upon it as has the Mackintosh. The illustrations that accompany this article need no description, for they show excellently two styles of garments



made by the American Rubber Co., of Boston, Mass. These goods are made from a variety of fabrics, either of single texture with a lining of pure gum, or double texture, and are finished in such fashion that the most exacting critic can find little fault with them. Aside from this, the rubber is carefully vulcanized, and is so compounded that there is no danger of its growing stiff or hard with age, or in any way deteriorating. With this sort of warrant on them, customers are not afraid to buy the most expensive goods and to feel that they will have their money's worth, both in style and in wear.

—The variety of styles in rubber soling have gotten to be almost infinite. Among them are many designs that are beautiful and artistic. A special design for lawn tennis and sporting shoes is here illustrated. The peculiar basket work form into which the sole is moulded gives it an excellent grip either on a smoothly shaven lawn or on the deck of a yacht. The use to which this soling is put during the winter is in the make-up of shoes for gymnasium work. Manufactured by the Boston Woven Hose Co., of Boston, Mass.





## Early Times in the Rubber Trade.

ABOUT a year ago THE INDIA RUBBER WORLD published a series of articles giving a brief chronological outline of the gradual development of the India rubber industry from the earliest dates of which there is any record upon the subject up to 1835-36, when Charles Goodyear's experiments began to give certain promise of importance. At that time interest in the subject became so general, and consequently the historical records so voluminous, that the chronological method of presenting the matter promised to become unsatisfactory, so we abandoned the publication with the intention of treating the subject more effectively in a series of special articles showing the development of the industry in each of its special branches; one series of articles to be devoted to mechanical goods, another to clothing, a third to rubber boots and shoes, and so on. Further investigation, however, satisfied us that a chronological outline, briefer in character than those previously published, is well worthy of presentation; and we have, therefore, concluded to complete the story in this way, in addition to giving the series of special articles, which will follow in due time. The next installment of the chronological outline of the trade is as follows:

**1835.** In 1835, there were evidences in the various publications of that time, that much interest had sprung up in the manufacture of Caoutchouc into various articles, especially in the way of waterproofing for clothing. This was not confined to articles of rubber, but extended to leather, and other fabrics, in which the gum took no part. This was the case more particularly in England than in this country. Unfortunately the Patent Office at Washington had been destroyed by fire, and until 1845, the records were so imperfect as almost to be valueless. This probably accounts for a wide discrepancy in the dates of the leading inventions in India rubber as recorded by the various authors, and also for the fact that a great industry sprung up in this country, step by step, without a chronological record.

The invention of Thomas Hancock (1835), a prolific inventor in England, and with whom Charles Goodyear became entangled in an unfortunate interference on Hancock's part has been mentioned. Also that of Wm. Sevier in 1836, another Englishman, who patented a process for the manufacture of India rubber. Sevier dissolved the India rubber, and spread it over other gum mixed with litharge, acetate of lead, or sulphate of zinc, the two preparations being pressed together and then dried. His formula was one ounce of sulphate of zinc, acetate of lead, or litharge in one quart of turpentine. The compound was allowed to stand three or four days, during which time the mineral parts had settled, and then the turpentine was poured off. The formula of James Marten, patented in England in 1836, was to convert 400 gallons of water into steam passing into an alembic in which there were 15 lbs. of sulphuric acid. To this 300 gallons brown volatile oil, or spirits, were added. Then steam was added from the

boiler to the bottom of the alembic, and another distillation of the more volatile, or ethereal parts of the rough oil or spirit was made. Marten's broad claim is every mode and variation which can effect decomposition or carbonization of rough mineral, vegetable or animal oil or spirit by sulphuric acid for the purpose of dissolving caoutchouc, or India rubber.

**1837.** In 1837, Robert William Sevier obtained a patent in England for the forming of a nap, or pile, upon the surface of waterproof cloth or fabric, and hats or caps.

At this time nearly all English patents mentioned the milk of the Caoutchouc tree, as gathered in Brazil. This would seem to imply that inventors had the impression that means had been found to transport the product to England in this state. The editor of the journal of the *London Society of Arts and Sciences*, in commenting upon this stereotyped expression, avers that not a pint of the milk had been brought to England.

**1838.** Charles Goodyear further improved the manufacture of India rubber by the use of sulphur in a practical manner. He had become acquainted with Nathaniel Hayward, who had been employed as a foreman in the Eagle Company, at Woburn, where he had made use of sulphur, by impregnating the solvent with it. It was from Hayward that Goodyear received his first knowledge of the use of this material. They afterwards made life preservers by the use of sulphurous acid gas, and the solarizing process. In the subsequent year, he purchased the sulphurous process of Hayward; but the odor of the goods made from this process, and the fact that they would harden in cold weather, were features that almost destroyed the value of the patent.

**1840.** J. Hancock took out in England a patent for forming a fabric by combining caoutchouc, or its compounds with wood, whalebone, or other fibrous material, vegetable or animal, manufactured, or prepared, or with metallic substances.

The records of the English patent office in this and subsequent years show that the Hancocks were very busy in experimenting with various compounds, embracing many of the oils and chemicals in use in India rubber manufactories of the present day.

Daniel Hodgman builds a factory for the manufacture of rubber goods at the foot of 26th Street, East River, New York City. Mr. Hodgman had been in business a number of years at this time, and was a prominent dealer and manufacturer.

**1843.** Gutta percha was first made known in European countries by Dr. Montgomerie of the Indian Medical Service. He first noticed this substance as being used by the Malays for different purposes, notably handles for knives.

Dr. D'Almeida also brought to London, from the East Indies, samples of this material.

While travellers in the East Indies had noticed the use of this material to a large extent by the natives, these were the first dates of their introduction into Europe, and the event was considered of such importance that the London Society of Arts presented Dr. Montgomerie with a medal as a reward for his services.

Thomas Hancock took out a patent for an improvement in the manufacture of caoutchouc in combination with other substances, which preparation, or manufacture is suitable for rendering leather, cloth or other fabrics waterproof.

1844. Two hundred pounds of gutta percha were shipped from Singapore to England as an experiment. It proved a great success, and subsequent shipments followed, and it constantly grew in value as an article of commercial importance.

Charles Goodyear patented his process of vulcanization in America, France and England. It is said that he accidentally dropped a piece of the gum on a red-hot stove, and upon removing it noticed a peculiar effect, which led to further experiments. He was unfortunate with his French patent, the laws of that nation compelling him to constantly manufacture and keep in use the articles produced under it. He made superhuman efforts to do so, but his means being limited, he could not comply literally with the law, and the officials took advantage of his circumstances to annul the patent. He was also unfortunate with his English patents. His intercourse with Charles Macintosh had been of very intimate character, and many experiments had been carried on in his English factories. In the course of these experiments, Thomas Hancock, an English inventor, who was employed in Macintosh's mills became fully acquainted with Goodyear's methods and formulæ. The consequence was that, much to the surprise of all parties who had any knowledge of the facts, Thomas Hancock secured a patent antedating that of Charles Goodyear, almost identical in method with it, and also with the French patent which had been published a few weeks previously. Hancock afterwards made such admissions, in evidence under oath, as proved that he was indebted to Goodyear for the basis or practically the whole of the patent granted him.

Charles Goodyear took out this year in the United States three different patents. At that time he was a resident of New York, but subsequently moved to New Haven, Conn., at which place he continued his experiments, and in the succeeding year forwarded two more patents applications to Washington. One of Goodyear's solutions at this time was:

5 parts Sulphur; 7 parts White Lead; 25 parts Caoutchouc.

1845. The incompleteness of the records of the Patent Office with relation to all inventions in the preceding years is slightly offset by the statement of the commissioner of patents, formulated in a general *résumé* of the progress of the several industries of the country. He states that the great value of Caoutchouc in the arts, has led to a great variety of devices to overcome the difficulties experienced on its first introduction; a speedy mode of dissolving and a practical method of drying the solution. He states that no solvent has been obtained better than Caoutchoucine, a liquor prepared by the destructive distillation of the Caoutchouc itself, but the great expense of the solvent precludes its permanent use. At present a turpentine is generally used as a most economical solvent. With turpen-

tine came another difficulty, but that was obviated by the use of sulphur. There have been quite a number of patents taken out, relating to corrugated, or shirred fabrics, and suspenders or straps. These inventions consist of stretching threads of India rubber to their utmost tension, inclosing these threads between two layers of cloth, the layers adhering by means of India rubber cement, and the whole being passed between heavy rollers, which securely prevents separation. The fabric is firm and when dry the threads contract, which draws the cloth into wrinkles, hence the corrugation, or shirring. Much use of this material was made in shoes and slippers, and the congress boot of to-day is a descendant.

The commissioner further states that India rubber was largely used in that day in surgical instruments, life preservers, gas-holders, varnishes, pavements and roofing. At that time trees had been planted in Florida for the growth of Caoutchouc, and the commissioner expressed the hope that those trees would prove fruitful.

In this year James Bogardus patented machinery for corrugating, which consisted of two sets of feed wheels which admits of the turning of the material back to stretch the strips of India rubber. This movement is combined with pressure rollers, the peripheries of which move with greater velocity than those of the feed.

The imports of gutta percha into England during this year amount to 20,600 pounds, in 1848, they were 3,000,000 and in 1852, 30,580,000 pounds. An imitation of gutta percha was later found in the juice of the Mudder tree, which answered for a great many purposes, but for insulation it failed entirely, proving a fair conductor; another imitation was called gutta, and which was the inspissated juice of an artocarpus. The factories at Naugatuck, Ct., now owned and operated by the Wales Goodyear people were built. The Boston Belting Co., was incorporated in this year, although its factory in Roxbury had been in operation since 1828. Smooth surface belting first came into use about this time.

(To be continued.)

### The World's Fair by a Chicagoan.

MR. A. H. LYMAN, Western manager of the Boston Woven Hose Company, with headquarters at Chicago has been in the East for several days past on one of his periodical trips here, and on the 10th inst. he honored our sanctum with a very agreeable call.

Speaking of the World's Fair, said he: "Chicago is on its mettle in this matter, and you may be assured that the World's Fair will be carried through to a pronounced success. The people realize that the eyes of the world are upon them; that they have rather an exalted position as an enterprising city to maintain; and they know full well that the job they have on hand is a big one. I have not kept up with the details of the subject, but I gather this from what I absorb in moving about among the people. There is no occasion for anxiety upon the subject among you people here in New York. Whether we will give as good a show as you would have given, of course is a question; but you may satisfy yourselves that Chicago is in dead earnest in this matter, and that when the exhibit opens it will be one to startle even a New Yorker into admiration." In an-



swer to the inquiry as to the prospect of the displays by the rubber men, he said: "From what I have gathered it is the fixed determination of every rubber company which has a business in the West to make a very excellent display; but it is too early yet for any definite plans; and I am, therefore, not ready to say whether the method of display will be individual or collective. I am inclined to think, however, that a collective display would be decidedly effective from an educational point of view, in impressing visitors with the extent and importance of our industry, and hence more business would result than if the manufacturers divided their forces."

### Calendering for the Trade.

**A**MONG the many inquiries which come to the office of THE INDIA RUBBER WORLD, and which it always gives us great pleasure to answer promptly, and as fully as possible, is the following one, bearing date October 21st, which we think worthy of special mention, namely:

EDITOR INDIA RUBBER WORLD:

*Dear Sir*—Can you give us the names and address of one or more parties who make a specialty of coating gossamer and mackintosh single and double textures? Your early convenience will greatly oblige, yours respectfully, ———

Our reply to this query was an immediate reference of the letter to the Mattson Rubber Company, 8 College Place, New York. The name Mattson is perhaps as well known as any other one in the trade, Goodyear alone excepted; and it is inseparably associated with the manufacture of a very high grade of druggists' sundry goods. But in recent years the manufacture of all the Mattson specialties in druggists' sundries has been carried on by Messrs. Doty & Herbert, of the Atlas Rubber Co., New York, and the original Mattson Company has departed into a line of business which it is well for the rubber trade at large to be familiar with. They are making a specialty of the business of calendering and proofing of every description, both of single and double texture goods, and for every conceivable purpose. The extent to which their business has quietly grown may be comprehended by a statement of the fact that at present it is a common occurrence for them to work up and turn out 1600 pounds of pure rubber in one day. They have every possible facility for doing this kind of work, in any and all grades that may be desired, and their factory being under the direction of men who have given years of study and long experience to the work, it may be said without reservation that they are prepared to fill any demand that may come from the trade.

### Generous Board.

**M**RS. HASHOUSE—"I hope you like those buckwheat cakes this morning, Mr. Fourawek. I flatter myself they are pretty fine."

Mr. Fourawek—"Oh, yes; but I wonder that you let us have them."

Mrs. Hashouse—"Why?"

Mr. Fourawek—"Because you could make so much more money if you made them into overshoes."

### Additions to an Already Large Plant.

**F**OR some time past the American Rubber Co. have been enlarging their plant at Cambridgeport. Indeed, so often has been the increase in their buildings that it would almost have been worth our while to have electrotyped the statement that this progressive company were putting up new buildings. The latest additions have been two buildings, 54 feet in length, four stories high, which are added to the main structures of the mill. This part is to be used for the manufacture of oil clothing. At present the new structures are being pushed very rapidly, and by the time this is in type the floors will be laid and the machinery in motion. The idea is to manufacture the oil clothing and the rubber clothing in adjacent parts of the plant, and to separate these departments altogether from the making-up departments of the boots, shoes and arctics. The buildings for the manufacture of these textile goods will be connected with the boot and shoe departments by bridges, and will have also a direct connection with the grinding and calender room, but aside from this, it is as if a separate factory were run for the manufacture of these goods. With the vast increase of manufacturing done by the American company has come the water problem, as in the past they have paid the city for every gallon of water they have used. They have therefore bored a number of wells, and in four of them have found very good water. They are at the present time pumping about fifty gallons of water a minute from these wells. They hope, however, to double this capacity, which will give them all the water they need for use in the factory.

### A Valuable Thermometer.

**A**THERMOMETER which promises to find a place in every rubber factory is illustrated here. A close examination will show the reader that some little distance above the mercury on either side a portion of the liquid is supported and stands apart from the rest. This is purposely so arranged, and



by means of it the highest and lowest range of temperature is recorded. That is to say, it is impossible for the temperature to rise above a given point, or go below another, without the instrument leaving a certain record of the fact; while in the meanwhile the thermometer acts in other respects exactly as an ordinary instrument. They are manufactured by Messrs. August Neubeck & Co., of No. 111 Nassau Street, New York, who are prepared to make them for all purposes that may be required by a rubber mill, and who will take pleasure in responding to all inquiries upon the subject.

**P**ULVERIZED rubber boots and shoes make nice chewing gum.—*Yonkers Gazette*.

Yes, it has been known for a long time that they are made into over chews.—*Boston Commercial Bulletin*.

**J**OHNNY GREYNECK—"Mother, is the ocean made of rubber?"

Mrs. Greyneck—"Why, no, my child, what makes you ask such a question?"

Johnny Greyneck—"Then what makes the billows bound?"

## A Very Modest Man.

I KNOW a man so modest,  
And shy and pure of mind,  
I do not think in all the world  
His equal you will find.

He went once to the seaside,  
But he'll go there no more;  
Because it gave him such a shock  
To see the clothes they wore.

He won't go near a theatre,  
However fine the play,  
If on the stage there's ever been  
The bad and bold ballet.

But what doth most his modesty  
In all its depths disclose—  
He let his house burn to the ground  
Before he'd touch the hose.

## Trade Notes.

MR. GEORGE W. PERRY, of the American Rubber Co., St. Louis, Mo., is the proud father of a son and heir. It is expected that George, Jr., will soon take to the road with a sample case full of the American Company's new pure gum specialties.

—The Acme Rubber Co., New York, making a specialty of fine mould work, is at present turning out a lot of insect guns for next summer's campaign. They are a sort of mitrailleuse for those little pests. By the way, a new nipple, an imitation of Davidson's, in good stock, at the low price of 25 cents per dozen, and an English breast pump at 16 cents each, are among the bargains now offered by this company.

—Mr. F. C. Howlett has lately moved into his new store on West Fayette Street, Syracuse, N. Y., and has one of the finest and best appointed rubber stores in the country. Mr. Howlett is one of the pushing men in the business, and has made his name known throughout the State.

—At the Street Railway Convention held at Iroquois Hotel, Buffalo, N. Y., October 16, we noticed J. W. Godfrey, Gen'l Manager and Mr. G. H. Meeker, both of the New York Insulated Wire Co.; Dr. Mason of the Simplex Co.; Mr. James H. Kelly, of the Edison Machine Works; Mr. H. Larbig, of Holmes, Booth and Hayden. This convention was attended by over one thousand delegates and was the most successful ever held.

—Among the delegates to the Carriage Builders' National Association Convention held at Chicago on the 16th inst., were seen Mr. E. L. Joy, of L. Joy & Co., Newark, N. J.; Mr. C. C. Curtis, of the Cable Rubber Co.; M. D. C. Marr, of the Stoughton Rubber Co.; Mr. E. W. Harral, Pres't of the Fairfield Rubber Co.; Mr. Walter N. Dole, of the Evans Artificial Rubber Co. and Mr. George Clapp, of the Goodyear Rubber Co. All of these gentlemen were explaining to the delegates in their usual happy manner, the superior quality of their Ducks and Drills, and from their pleased faces at the close of the Convention, we judged that they all departed with a good share of orders.

—It is rumored that a new mill is to be started in Baltimore, for the manufacture of Gossamer and heavy clothing, under the name of the Chesapeake Rubber Co. If this is the case, they will undoubtedly be able to furnish goods at low prices, for Baltimore is considered one of the cheapest labor markets in the country.

—The Meyer Rubber Co., New York, have had a very large demand from the West, as well as nearer home, and are now getting orders for next spring. The mill is running at its full capacity.

—Agents for Chas. Macintosh Son & Co., and J. Mandelberg & Co., both of Manchester, England, are reported on good authority to be looking for a site for the erection of a mill for the manufacture of macintoshes in this country on account of the McKinley tariff law.

—Mr. W. H. Barker, for the past ten years managing clerk for C. M. Clapp & Co., has accepted a position with the Pará Rubber Shoe Co., and will push the sale of Pará specialties to the trade in Boston and vicinity. With Mr. Barker's wide acquaintance, he will undoubtedly secure a large share of orders.

—The firm of Geo. W. Sanders & Co., of St. Louis, have removed to their new five story building, No. 616 Locust Street. This store is one of the finest rubber stores in the West. The first floor is elegantly fitted up, finished in hard wood and handsomely carpeted, and they show on racks a fine line of samples of mackintoshes, also gossamer and rubber clothing. Further on in the building we noticed a large and complete stock of the New York Belting and Packing Company's goods, of which Sanders & Co. are the local agents, this department being under the charge of Mr. Charles C. Peters, who has had some sixteen years' experience in the sale of mechanical goods and who also superintends the leather belting department of goods manufactured by the Graton & Knight Mfg. Co. The third and fourth floors are used for the stock of A. J. Tower's Fish Brand Oil Clothing, for which this house are also the local agents. The top floor is used for the manufacture of canvas tents and awnings, etc. It is Mr. Sanders' proud boast that he began the rubber business with the purchase of one case of Lustre Officers' sheeting coats, and in four years time has pushed his firm into one of the largest distributors of rubber goods in the South-west.

—Mr. Dietrick, of Ames & Dietrick, of San Francisco and Portland, paid a visit to New York and Boston last month. He says of business out West: "The season's trade has opened up nicely, and bids fair to exceed any previous year's business on the Pacific Coast."

—The Farrell Foundry & Machine Co., of Ansonia, Conn., are just finishing a foundry which is to be one of the finest in the world. The foundry complete is going to cost about \$100,000, the copper roof alone costing \$8000. A feature of this foundry will be the melting of the metal by a gas process, which is altogether new in this part of the country. It is hardly worth while to say that the Farrell Foundry is busy when it is known throughout the country that, strive as they may, they cannot keep up with their orders; and that in the chilled roll business alone they manufacture ninety-five per cent. of all that are used in the flouring mills.

—Hon. Elisha S. Converse, treasurer of the Boston Rubber Shoe Co., after a five months' absence in Europe, has returned home. Mr. Converse, during his trip abroad, was exceedingly well and robust, and until about the time of sailing for the United States did not even know what it was to have a cold. He did, however, catch a slight cold just before he started, and when he arrived at his place in Malden, found it advisable to keep in the house for a few days because of the heavy rains and generally inclement weather. But he is out again now and is taking as much interest in his manufactures and philanthropic projects as ever before. Mr. Converse and his estimable wife were tendered a delightful reception and entertainment at the First Baptist Church, Malden, Mass., on the 6th inst., in honor of their return home.



—A. P. Butler, Esq., manager of the San Francisco store of the Boston Woven Hose Co., was East for a brief visit recently and has just returned to the Pacific coast.

—The rubber men of Boston must be quite liberal cigar buyers for a well-known cigar dealer in Post Office Square has a brand of cigars that he calls the "RUBBER MEN'S CIGAR." They are claimed to be made of pure Pará with no shoddy in them and sell like hot cakes.

—Boston has a new rubber store on West Street which advertises gossamers and ladies' and gentlemen's rubber clothing exclusively. It is called the West Street Gossamer Store, and special attention is paid to garments made to order. The manager of this store is Miss A. M. Oliver.

—Mr. H. H. Tyer, president of the Tyer Rubber Co., has just returned from Sioux City, Iowa, where he has been inspecting the corn palace, and, by the way of relaxation, looking over quite extensive land interests that he has in that section.

—Mr. Clough, the buyer in the druggist sundries department of the Hornick Drug Co., of Sioux City, a gentleman well known to the rubber trade, was one of the leaders in producing that marvel of architectural skill, the Sioux City Corn Palace.

—Mr. Walter N. Dole and Mr. Prince, of the Evans Artificial Leather Co., of Boston, were present at the recent carriage convention in Chicago and heard many flattering testimonials as to the worth of the Evans artificial leather in carriage construction. As this Evans artificial leather is a rubber product, this item belongs right here in THE INDIA RUBBER WORLD where it is put.

—The rubber boot and shoe men are having an excellent trade, and if the Signal Bureau would only give them some very bad weather, they would have nothing more to ask.

—Mr. Frank Town, of Town & Bro., Philadelphia, was in New York on the 20th ult., looking over the market and reports a very large fall trade in clothing.

—The Woonsocket Rubber Co. are very busy. The new mill is gradually being worked to its full capacity as fast as is practicable with new machinery, and in a few weeks will be at its maximum in manufactured product. That will be an output of 8000 pairs shoes per day.

—The Alice Mill, at Woonsocket, will be devoted exclusively to the manufacture of shoes. The demand for short boots has been very large this year, and there are very few in stock now, a state of the trade which applies to all manufacturers. This company has been doing a large export trade lately, two orders of 1500 pairs each last week going to Constantinople, with a good-sized shipment for the Alps climbers following to Zurich.

—Mr. D. E. Bracket, proprietor of the "Deep Cut" Rubber Goods Store at Lansing, Mich., seems to have been cutting prices a little too deep, for he is reported to be in the hands of the sheriff, on complaint of non-payment to G. H. Leeder of Grand Rapids, Mich.

—The American Rubber Co. have recently gotten out some new patterns in waterproofing in plaids and other styles. Newmarkets made of these goods cost about \$100 per dozen. They also have a full line of prints which are more than reasonable. In fact, the great variety of waterproofs, and the very substantial character of both the cheap and the expensive kinds are a standing menace to the business of druggists, physicians, and the repetition of Porter counts.

—Large amounts of drilling and carriage goods are now being shipped to South Africa, the denizens of the "bush" liking our goods.

—The Boston Belting Co. are doing an excellent business in rubber rolls, which they have been selling now for twenty-five years, and which are used in all modern paper mills, bleacheries, tanneries, etc. It is calculated that in the time mentioned this company has made up 20,000 rolls, and it is a business that is constantly increasing. The same company recently sold, in one order, 30 tons soling, worth, say, \$20,000. This order was for general distribution. Good orders for packing, belting, etc., are constantly going into export channels.

—Blanket orders from Western firms are being rapidly exhausted, and when the full effect of the recently reported sleet and snow storms in the Northwest is appreciated, it is thought that another push at the pitchfork of demand will be given to urge the manufacturers to increased efforts in the augmentation of supplies.

—The elastic web people have been busy in getting out new styles, this being an off month in the trade. It is expected that the run for blacks will continue until March.

—Mr. T. Martin, of T. Martin & Brother, New York, has been on a visit to his Canadian factories. The Canadian government has taken off the duty on rubber thread. The McKinley bill advanced the duties 15 per cent. The price of spun rubber is still maintained at \$1.85.

—Messrs. Walter D. Walsh and S. D. Davonport, of the Missouri Rubber Co., St. Louis, are in the East looking after their business interests, and THE INDIA RUBBER WORLD is indebted to them for a very pleasant call at our sanctum. They report business as excellent with them, and as having far exceeded their expectations when the company was organized and began operations three years ago. This is not to be wondered at, however, for both of the gentlemen give unmistakable evidence of level heads and an amount of business push which is infectious, it stands out about them so prominently. Business is usually good among good salesmen, and that is what both Messrs. Walsh and Davonport have the record of having been before they went in business for themselves.

—The Trenton Rubber Co. keep a force of type-writers hard at work the year round writing letters to purchasers of rubber goods. In the mass of letters that come back in reply to these communications are many that are very amusing. One that set the office in a roar of laughter recently was a serious reply from a selectman of a Southwestern town who had been broached on the subject of fire hose. He wrote candidly that as the weather was warm down there, the bulk of the population, ladies included, did not wear stockings, hence there was a poor market there.

—Messrs. Joseph & Edward Elberson have leased the plant of the former Brookhaven Rubber Co., at Setauket, L. I., and have begun the manufacture of rubber boots and shoes. The lease gives them the privilege of purchasing the property later if they see fit. The Elbersons are well known as experienced rubber men and hard workers, and they have the best wishes of the trade.

—Hon. Frank A. Magowan, president of the Trenton Rubber Co., is carrying his arm in a sling. A broken tendon is the cause, and it proves a painful and troublesome affair.

—The Marlboro Rubber Co., Marlboro, Mass., is steadily widening its market. It has an order just ready for the Provident Life and Trust Co., of New York. Not long since they sent a bill of goods to California.

—The Derby Rubber Co., Hilton, Conn., is building a one story addition to their factory extended on the newly acquired property on the south.

—The Metropolitan Rubber Co., New York, lately received an order from Australia for some of their goods, accompanied by \$300 in American currency, this being the amount of the purchase. The purchaser probably procured the money at a discount, besides which he saved the cost of exchange which would have attended a remittance by draft.

—The Chattan M'fg Co., of Pawtucket, R. I., is making some waterproof leggings that appear to please the trade immensely. They certainly present a very neat appearance, and are sold at a price that places them within the reach of every one.

—The new Alice Mill at Woonsocket is being rapidly filled with rubber shoe makers, many of whom are new hands who have just served a brief apprenticeship under the regular help in the old Woonsocket plant.

—Manager Goward, of the Hayward Rubber Store, Pawtucket, R. I., is doing a fine business this fall, and has in the past six months added many new lines to his stock. His store has a thrifty, businesslike air that is very pleasing not only to the journalistic observer, but to the customer as well.

—"Yes" said Mr. Ballou, sales agent of the Woonsocket Rubber Co. "I was away last week. Went gunning and did a lot of tramping."

"Did you get anything?" anxiously inquired the scribe, pencil in hand.

"I always get something" was the dignified reply.

"May I ask what you got this time?"

"Certainly! I got tired."

—The rubber men who visit Providence, R. I., are wont to drop into Studley Bros. Rubber Store, when they wish to spend a pleasant half hour, or chat upon topics of interest. The fact that the Messrs. Studley have been in the business, both as manufacturers and dealers, for many years, and right in the spot where many of rubber pioneers started, makes their reminiscences delightful.

—Mr. C. B. Street, the superintendent of the Gutta Percha and Rubber Manufacturing Co.'s Mill in Toronto, Can., made a flying visit to Boston last week.

—Mr. H. F. Taintor, whose Whiting and Paris White are known wherever rubber goods are manufactured, spent a pleasant fortnight fishing off the Rhode Island coast this fall. He was accompanied by Mr. Angel, who is associated with him in his business, and the pair had a most enjoyable time. Fish were plenty, and a part of the time at least the weather was all that could be desired.

—A first-class thermometer, hung on the side of a handsome plush frame, is an attractive device for calling attention to the name Pará Rubber Shoe Co., which the frame incloses. Advertisements of this kind are costly, but they are cheaper than ordinary printed circulars—paradoxical though this may sound—for they are looked at, preserved and remembered.

—The trade in recovered rubber must be good, for Murray, Whitehead & Murray, of Trenton, N. J., have been forced to build another addition to their mill, and to put in extra machinery.

—The official papers converting the Ideal Rubber Company from a private firm into a corporation have been published. The capital stock is \$20,000, in shares valued at \$20 each, and Messrs. Anton C. Eggers, Henry G. Rettig and Joseph P. Heffernan are the trustees. Success go with you, gentlemen.

—The "banner day" in the factory record of the Colchester Rubber Company was reached recently when they turned out 8865 pairs of boots and shoes in ten hours' work. This beats a record of forty years, extending throughout the whole career of the Hayward Rubber Company, of which the Colchester Co. are successors.

—The capital stock of the Page Belting Company at Concord, N. H., has been increased by 2000 shares, the original shareholders having the preference as purchasers—a fact which indicates that business is pretty good up there.

—The Indiana Rubber & Insulated Wire Company, located at Jonesboro, Indiana, which is in the natural gas belt of that region, was incorporated on October 22, and the purposes for which the corporation is formed are stated to be the manufacture of all kinds of rubber and rubber goods, and insulated wires and cables. The directors are James Seiberling, Monroe Seiberling, Henry M. Motz, Freemont E. Lyon, John H. Barnes, George G. Tape, and J. H. Ross. Capital stock \$200,000.

—The Summit Rubber Co. has moved its New York office from 47 Leonard Street to 13 E. 17th Street, where they expect to find more of the trade that they wish to reach.

—The plant of the Natural India Rubber Co. has run without any shut down for the past three years, and with a steadily increasing business, until now they have nearly reached the full capacity of the plant. Speaking of the matter recently, Best Colt said: "I believe we have a greater capacity than that of any other single plant in the country, and we turn out a greater variety of goods."

—Mr. George H. Appleton, well known to the Druggist Sundry men of the United States, has opened an office at 266 Washington Street, Boston. He will carry a line of specialties in surgical goods, among which are some rubber articles, patents for which he has lately purchased.

—The Massachusetts Rubber Co., of Reading, Mass., have started the machinery at their plant, and are already turning out a considerable quantity of goods. Their line for the present embraces mackintoshes in great variety, and all kinds of the better grade of rubber clothing.

—Even horses wear rubbers now-a-days. One supply company sold more than ten thousand pairs of rubber horse-shoes this past season, and they expect to double their sales next year.

—Frank E. Hall, of 67 Chauncy Street, Boston, whose buttons are so widely used in rubber clothing, has just invented a new one that promises to be especially popular. It is designed to replace the ordinary tubular rivet button, is put on with one motion without first punching a hole in the cloth. As it can be attached as fast as the fabric can be handled, and as it is simple and cheap, Mr. Hall justly claims that he has another "snap."

—Mr. Angier, a travelling man whom many of our readers well know, has connected himself with the Boston Car Spring Co., of Boston, Mass.

—Mr. H. Lockwood, for many years with the Boston Car Spring Co., has accepted a position with the Newton Rubber Co., of Boston, Mass.

—The recent election gives J. M. Plummer, Esq., the N. E. agent for the Globe Rubber Works, the opportunity to become one of our law-makers. The large majority by which he was elected as Representative indicates a considerable degree of popularity which he certainly deserves.

—The will of the late Mark M. Stanfield, who was one of the proprietors of the Victoria Hotel, New York, is to be contested by his three sons, who receive only the income of \$25,000, \$20,000 and \$10,000 respectively, while the bulk of the estate is bequeathed to Douglas M. Stanfield, a grandson, who is a minor, his mother being appointed guardian. George Otis Stanfield, however, received all of the deceased's interest in the Pará Rubber Shoe Co. Undue influence and mental incapacity are the grounds on which the contest of the will is brought.



—We learn from the Newton, Mass., *Graphic* that "the Newton Rubber Works Co. are running their shops until 10 o'clock P. M. at present. Good! Brother Rand. May driving prosperity ever wait upon you.

—Mr. F. J. Merrill, representing the Massachusetts Rubber Co. of Reading, Mass., passed through New York the first of the week on his maiden trip for the new company. He will cover all principal points in the West, and he carries with him a line of samples which will undoubtedly attract custom.

—Mr. Charles Goodyear, the son of the great India rubber inventor, has been in New York for several weeks past visiting relatives, and left a few days ago for the South, where he expects to spend the winter at Waynesville, N. C. Mr. Goodyear has not been in very good health for the past year or more, but he is looking quite well now, and gaining strength rapidly.

—Mr. John Arnett, senior member of the firm of Arnett & Bros., San Francisco, Cal., has been in New York for several days past looking after his interests here. Mr. Arnett's firm does as large a business in general India rubber as any house on the Pacific slope; and he reports trade out there as very satisfactory this year. They are the special representatives of the New York Belting and Packing Co. in the mechanical goods line.

—The Metropolitan Rubber Co. opened its new store in Boston on the 10th inst. A description of it has been given in previous numbers of THE INDIA RUBBER WORLD, and it now enters the list with a full line of excellent goods.

—Since Col. Samuel P. Colt assumed the duties of president and general manager of the National India Rubber Co. three years ago, the mill has been running almost continuously. At the present time 1000 hands are employed and the pay roll is about \$37,000 a month. The effect of this increase on business has been favorable, for no one is now seen inquiring for work in the market place, or mourning over the fate that makes him dependent for bread for his family. As a result of this there have been many improvements made in all parts of the town, and the aspect of everything is brighter. The three years have been fruitful ones.—*Providence Journal*.

—The Wales-Goodyear Co., New York, has the same stereotyped report—"plenty of orders, and few goods to deliver."

—Mr. Fred Jones, manager of the Boston office of the-Tyer Rubber Co., is off on a business trip through the Provinces, a part of the country where the goods of the Tyer Rubber Co. are well and favorably known.

—President Lewis Roberts, of the Commonwealth Rubber Co., of New York, retires this month from all active business, and goes abroad with his family. His purpose in entering the rubber business was to make a good opening for his son, Mr. A. F. Roberts, the present secretary. Samuel F. Randolph, the energetic treasurer and manager of the Commonwealth Co., succeeds Mr. Roberts in the presidency, and is to-day the largest individual stockholder.

—The Home Rubber Co., of Trenton, N. J., encountered an unforeseen obstacle in putting in the foundation for their big engine. After digging down a few feet they struck quicksand, and were obliged to go to the bottom of it for a start. The extra cost in the engine setting amounted to about \$2000.

—Stephen T. Barker, doing business as Barker & Co. at the old rubber store corner Maiden Lane and Nassau Street, New York, was attached by the sheriff on the 25th ult. on claims of New York banks and others for borrowed money aggregating \$34,000; and immediately thereafter merchandise and other claims were filed to the amount of about \$20,000. The assets consist of stock, book accounts, etc., to the value of perhaps \$15,000.

## Rubber at the World's Fair.

SINCE the selection of Chicago as a site for the Columbian or World's Fair there has been less interest expressed in the subject of a great exhibit by the rubber interests than seemed probable while New York had hopes of securing the fair. The mere fact that Chicago is farther removed from the principal headquarters of the rubber manufacturing interests will hardly be allowed to prevent appropriate action by the manufacturers when the time comes. There is no reason for believing that any sectional feeling enters into the matter, further than the fact that it may appear less convenient to organize a display at a distance than in a city about which the rubber business is largely centred.

"I am in favor of a concentrated effort on the part of all the rubber manufacturers to make a creditable display at Chicago," said President Place, of the Metropolitan Rubber Co., New York, to THE INDIA RUBBER WORLD. "The rubber clothing men, you know, have an association of which Mr. Apsley is president, and I expect a meeting to be held shortly to consider the matter. I think that I have been named as one of a committee to report upon it. Then there are the associations of mechanical rubber goods and rubber boot and shoe manufacturers, both of which, doubtless, will take an interest in making a display at Chicago. Certainly there is every reason for working in harmony in this matter. It will be better for all concerned if the manufacturers of rubber are ranged together in one building, instead of being scattered about all through the exposition, and probably in many cases overshadowed by comprehensive displays in other industries."

Manager Elson, at the New York office of the Boston Belting Co., expressed a doubt as to the success of the fair as an international event.

"There need be no surprise," said he, "if the prohibitory tariff laws here have the effect of keeping foreign countries from entering into competition at Chicago. Why should they go to the expense if, after all, their goods are to be denied a sale here?"

## Recent Catalogues.

A PERFECT gem in the way of an advertising device is the handsome fashion plate which has just been issued by the Stoughton Rubber Co. Its dimensions are 12x16 inches, and it consists of several sheets of beautiful plate paper, attractively bound into something of book form by a silken cord. The cover sets forth the title and the character of goods manufactured by the company, with a beautiful lithographic illustration of the factory, and the inner sheets are devoted to the illustration of their various lines of mackintoshes and rubber clothing. Each sheet is a picture in itself, the work being of the very highest class of lithographic art, and the colors blending so beautifully that the exact appearance of each garment is faithfully reflected, not alone in the texture, style and finish, but in the actual colors also. It is a highly creditable piece of work, which will undoubtedly bring a rich reward in appreciation by the retail trade. Congratulations, Mr. Randolph.

The new catalogue of the Woonsocket Rubber Co., illustrating their full line of boots and shoes, is very attractively gotten

up in a cover which is printed in four colors, and presents a very agreeable appearance. Handsome illustrations of the shoe factory at Woonsocket, the boot factory at Millville and the new Alice Mill at Woonsocket are given in the front portion of the volume, and thereafter follow very attractive illustrations of their many styles of rubber boots and shoes. The cuts given are all in outline, which is a pleasing variation from the solid black cuts so commonly used for illustrating rubber foot wear. A complete price list is given in the back, and altogether the volume is one which every retailer will find useful and instructive.

Handy convenience seems to have been the idea which the Colchester Rubber Co. had in mind in the publication of its new catalogue and price list. It is a long, narrow book, such as a salesman can carry in his pocket with ease, and the illustrations and price list are so arranged that they can be displayed readily to a customer. The illustrations are printed in two colors, black and light brown, which is a pleasing novelty in this line, and altogether the information is so full, and yet given in such compact and durable form, that it is certain to become popular.

The Patent Protected Heel is the novelty which commands immediate attention in the new catalogue of the National India Rubber Co., which, by the way, is in such demand from the retail trade that the company has been obliged to issue a second edition of ten thousand copies. It is a very handsome piece of work, most conveniently arranged, and would do for a model anywhere.

The small, compact catalogue and price list of the Chelsea Wire Fabric Rubber Co. is a very timely and instructive publication, which gives full information as to the manufacture, the uses and desirability of their patent wire fabric, which is gaining such headway in the trade.

The Boston Woven Hose Co. has just issued a neat and compact catalogue and price list which is assured of popularity among mechanical goods people, by virtue of its convenient size and form and the great mine of information contained in such small compass. The opening page contains this striking announcement: "New and original machinery, personal supervision by skilful men over every department of our business, square dealing, high quality of goods and low prices have enabled us to grow from a small concern, manufacturing in a single room, 16x20, eight years ago, to the present large industry, with its large and perfect plant, covering acres of ground. We do not consign goods, but sell outright, and can thereby save at least 10 per cent. to the dealer. Try our goods and you will experience the truth of our statement." One has but to read the succeeding pages to comprehend the significance and weight of this statement so succinctly put.

The Atlas Rubber Co., of New York, who manufacture all of the celebrated Mattson specialties in druggists' sundry goods, have just issued a revised catalogue and price list in which the prices of their goods are adapted to the changed conditions of the market. They adhere to the old form of catalogue which has been demonstrated to be the best for their uses. It is certainly a model of convenience in its way.

Every rubber manufacturer should make it his business to secure a copy of the handsome and instructive catalogue of 136 pages which has just been issued by the Crosby Steam Gauge and Valve Co., of Boston. It embraces a fund of information which every manufacturer should acquire, whether he desires to purchase or not, for it covers a variety of subjects in relation to steam users' specialties, the knowledge of which is indispensable to the successful operation of every plant.

### "From the Forest to the Foot."

THERE are trades that are dull and prosaic from beginning to end, and there are a few trades that are the reverse. Of this latter sort is the rubber business. From first to last, in its entirety, it is a business in which there has been much of adventure, of pathetic failure, of brilliant success. Very little, however, has been written about it, and less read. To those, therefore, who are interested in the romantic story of this wonderful gum, is to be commended that delightful brochure "From the Forest to the Foot." It is a dainty volume, elegantly bound, beautifully printed, and illustrated on every page by no less an artist than H. C. Brown.

The story-teller introduces the reader to the rubber gatherer in the forests of Brazil, to the genius who spent two million dollars, and years of his life in making the gum valuable, and to the largest plant for making rubber boots and shoes in the world. He does this so lucidly and in such charming English; and the pictures are so graphic, that few readers pause until the quaint *Finis* is reached. This book is presented to the reading public, or rather to the rubber wearing public, by the Boston Rubber Shoe Co. In order to secure a copy it is only necessary for one to ask their shoe dealer for it, and it will at once be forthcoming.

THE Springfield (Mass.) *Republican* of the 2d inst. says: "The prices of shoes and rubbers will undoubtedly remain firm for a season to come. Jobbers here have been holding off for some time in the hope of getting lower rates from manufacturers, but have had at last to pay the advance demanded of 5 to 10 cents a pair on leather shoes, which of course means 50 cents to a dollar in the retail stores. The rubber factories are running on full time with large orders, despite the recent experience of open winters. If any one doubts the advantage of free raw materials he should see the monster rubber goods factories in this vicinity that are being continually enlarged. They seem to know nothing of light markets and dull times."

THE Colchester Rubber Company have hit upon an idea which is taking well with the retail boot and shoe trade. On the insole of the right shoe of each pair of their self-acting rubbers they stamp the words "Put your RIGHT foot in here." By this device the wearer is not required to turn his shoe over to discover which is the right and which the left; and as the self-acting shoe is designed for use without the aid of the hands, this is a practical completion of the idea which seems now to be indispensable.

A USE for gutta percha that is certainly original is the making of a sort of birdlime of it by the natives in India. They have a way of preparing it so that it does not harden, but remains an exceedingly sticky, tenacious mass. This is spread on the leaves where birds are in the habit of alighting, a little bait put near there, and when an unfortunate feathered biped comes that way and alights on this sticky mass, its fate is as thoroughly sealed as if it had received a charge of bird shot.

### A Wise Precaution.

TUGGS—"Hello, old fellow, what in the world are you wearing your mackintosh for? It hasn't rained for a month."  
Mushly—"Yes, I know, but I am going out of town for a week, and I've been round saying goodbye to a lot of girls; and I thought I had better wear something for them to cry on."



## The Rubber Markets.

THE crude rubber market has been weak and unsettled, owing almost wholly to the strained financial situation, which has been one of much solicitation both here and in Europe, and within the past few days it has been so intensified as to be a matter of grave concern. At this writing, it is believed that the crisis is passed and there is nothing now to create alarm.

The arrivals of Pará at this port during the past month have been free, and are as follows:

Steamer.	Fine. lbs.	Medium. lbs.	Coarse. lbs.	Caucho. lbs.	Totals. lbs.
Oct. 20, <i>Gregory</i>	293,200	57,400	136,800	36,600	482,900
" 25, <i>Allanca</i>	184,900	31,000	81,500	9,900	282,900
Nov. 1, <i>Segurana</i>	174,900	25,000	68,600		268,500
" 1, <i>Paracuse</i>	173,400	25,000	110,100	36,200	334,700
	766,100	138,400	396,900	68,700	1,369,600

The shipments of the rubber afloat for the United States are: Steamers *Ambrose* 360 tons; *Advance* 90 tons and *Augustine* 315 tons, or a total of 765 tons, of which the bulk is on manufacturers' orders, all of that on the *Ambrose*, now nearly due, having been sold, and about 120 tons of the remainder on passage being unsold.

The estimated arrivals at Pará for the month of November are 1650 tons, there having been received at date 700 tons. Prices have been as low as 2300 reis for fine, and 1300 reis for coarse with exchange at 24%. From this point it advanced to 2500 reis for fine and 1500 reis for coarse, closing on the 12th, as reported by cable, at 2450 reis for fine, and 1450 for coarse for islands, with up-river 200 reis higher: exchange 23%. Stocks on hand 75 tons. The market was reported to be very firm with an active demand and holders asking higher prices for dry rubber.

Mail advices from Liverpool report arrivals of all kinds for the month of October at 793 tons, against 908 in September. The total sales for October were 256 tons against 170 tons in September. The exports were 240 tons, against 300 tons in September, of which 16 tons were to Boston and 75 to New York. Stocks October 31 were:

Pará, 396 tons; Fine, 14 tons; Coarse 55 Negroheads; Peruvian, 46 tons; Ceara, 26 tons; Mangabeira, 7 tons; West Indian, 4 tons, and African, 274 tons, a total of 859 tons, against 781 September 30. The market declined during the month, quotations being at 39½d on Wednesday.

In New York there has been considerable business done during the month, and arrivals have been closely absorbed. Stocks are believed to be no larger than they were a month ago, and parties who were bearish then are now confident bulls and are looking for an upward turn. There is very little speculative interest, and the majority of manufacturers are buying in this market from day to day.

As stocks do not increase in first hands under this condition, the market, it is believed, is working into a healthy position. There is very little old rubber for sale in the market.

As one outcome of the manipulation of the market for the past three months, it is interesting to note that the rapid decline in rubber, which was forced during the months of heavy receipts in Pará commencing in September, has rather worked against the dealers who were interested in bringing it about, by changing the current of trade, and large manufacturers in this country finding that the prices were unduly depressed in Pará, have been buyers in that market with the result that all of the stocks so far have been taken freely as they arrive.

As the outlook for the consumption of rubber is larger this year than any previous years, it is probable that large manufacturers will continue buying their heavy supplies in the Pará market. There is no opportunity for them to secure a stock

of rubber either in this country or in Europe, as the strong spot demand keeps the supplies in this market at a minimum; and it is probable that the manufacturers will this season secure the bulk of their stock for next year by buying in Pará rather than run the risk of buying from jobbers here at an advanced price later on.

This demand of manufacturers being a new feature in the Pará market, has created quite a wide difference between the dry rubber and the wet rubber, the variation being about five cents per pound more for the dry rubber.

So far as consumption is concerned, the market is in a very healthy condition. The rubber shoe factories are unusually busy, all the mills now running full capacity. This is caused by the large demand for rubber boot wear from all quarters. The weather in October was particularly wet and favorable for the sale of goods in the western part of the Middle States, in Ohio and Michigan and those further West. In those districts there were not over five or six clear days during October.

The jobbers and retailers are not overstocking, but the aggregate of their orders exceeds the daily product of all factories. New York city trade is exceptionally large, and should a general fall of snow take place, the supply would be found insufficient. Arctics are now selling freely, and short boots are in very light stock. Prices are firm, the best discount being 38 and 6 per cent.

Mechanical goods are active for the season, it being better than last year. A meeting of the Mechanical Rubber Goods Association was held in Boston, November 5, which was harmonious and well attended. Prices are very well held.

Belting and packing are in good demand. A discrimination in quality is now being quite rigidly made, and mills with the best reputation are behind in orders. Prices are somewhat irregular on account of the inferior qualities being pressed upon the market.

Clothing manufacturers are busy. The new tariff is quite thorough in its exclusion of foreign goods, still competition is close, and slight advances are as yet held with difficulty.

Web goods are very firm. Spun rubber is closely held, and webs are in very light supply.

Hard rubber goods are active, and prices are well maintained. Goods for electrical purposes are in excellent demand.

Gutta percha is dull, without change. There are no shipments on the way to this port.

The latest quotations in the New York market are:

Para, fine, new.....	73-74	Tongues.....	45-46
Para, fine, old.....		Sierra Leone.....	45-60
Para, coarse, new.....	60-61	Benguela.....	52-53
Para, fine, coarse, old.....		Congo Ball.....	44-45
Caucho (Peruvian) strip.....	50	Small Ball.....	43-44
Caucho (Peruvian) ball.....	58	Soft Ball.....	37-38
Mangabeira, sheet.....	44-48	Flake, Lump and Ord.....	31-35
Esmeralda, sausage.....	55-56	Mozambique, red ball.....	
Esmeralda, strip.....	59-64	Mozambique, white ball.....	
Guayaquil, strip.....	44-48	Madagascar, pinky.....	65
Virgin Scrap.....	60-62	Madagascar, black.....	50-52
Carthage, strip.....	40-42	Borneo.....	35-40
Nicaragua, scrap.....	55	Gutta percha, fine grade.....	123
Nicaragua, sheet.....	53	Gutta percha, medium.....	95
Guatemala, sheet.....	45	Gutta percha, hard white.....	85
Thimbles.....	42-43	Gutta percha, lower sorts.....	30-35

Litharge is firm with a good demand. We note a slight advance in prices since October 15. Quotations are 7½c for twelve ton lots in casks, 7c in hundred pound packages, 9½c in 500 pound lots, and 7½c in kegs. Very large lots could be obtained at a commission.

Linseed oil is firm at unchanged quotations.

An advance has been made in oxide of zinc. The mills are exceedingly busy, and future product is contracted for well into 1891.

Prices are Extra Selected, 5c per lb.

Extra, 4½ "

Ordinary, 4½ "

New York, Nov. 13th, 1890.

## Free Want Department.

**WANTED**—A young man to travel through Ohio, Pennsylvania and New York. Must thoroughly understand and be posted in Mechanical Rubber Goods and Fire Department Supplies. Must be able to give good references as regards ability, habits, etc. Also state salary expected. Address "D." INDIA RUBBER WORLD.

**WANTED**—Foreman or Supt., to take charge of shop employing 30 men. Must thoroughly understand and be able to produce economically all kinds of moulded work. Give age, experience and salary desired. Address F. W. M., 64 North Ada St., Chicago, Ill.

**WANTED**—First-class travelling men of experience, thoroughly acquainted with the rubber business in all its varieties, including mechanical goods; clothing, both oiled and rubber; druggists' and stationers' sundries. Address OMAHA RUBBER CO., 1008 Farnam Street, Omaha, Neb.

**WANTED**—By a Rubber Goods Salesman of Experience, position to travel for Manufacturer of Clothing, Mechanical Goods or both. Address, R. G. SALESMAN, INDIA RUBBER WORLD OFFICE.

**WANTED**—Position in rubber factory (Massachusetts preferred) by a young lady with four years' experience as stenographer, typewriter and general office assistant. Can furnish good references. Address "G. L." INDIA RUBBER WORLD OFFICE.

**A RESPONSIBLE MAN** in the rubber business having a good established trade would like to have the agency and carry stock, at his own expense, of lines of goods in the rubber trade on a commission basis. Has two stores in good location in New York and Brooklyn. Address "W. H. E." INDIA RUBBER WORLD OFFICE.

**WANTED**—A hard-rubber man, must understand compounding and manufacturing thoroughly. Address "D," P. O. Box 1326, Boston, Mass.

**WANTED**—Man thoroughly posted in the manufacture of hard rubber. Address "F. C. T." INDIA RUBBER WORLD.

**WANTED**—A good hose maker. One who is generally posted on general matters in mechanical rubber goods. Must be a sober man and one not afraid to work. Address A. A. A. INDIA RUBBER WORLD OFFICE.

**WANTED**—A full line of rubber samples of mechanical rubber goods, druggists and stationery goods, mackintoshes and domestic goods, with price lists, special discounts, circular, etc., from various manufacturers for West Virginia trade. Novelties, shoes and clothing especially wanted. Address The West Virginia Rubber Goods Agency, Box 128, Point Pleasant, W. Va.

**WANTED**—A first-class calender man on mechanical goods. Address, "P. L. S.," INDIA RUBBER WORLD OFFICE.

**WANTED**—By a man with twelve years experience, a position as superintendent of factory, making either rubber clothing or carriage cloth. Address S. A. M. INDIA RUBBER WORLD.

**WANTED**—A route on rubber clothing, shoes or general line by a salesman acquainted in East. Salary or commission or both. Address "BOSTON," INDIA RUBBER WORLD OFFICE.

**WANTED**—A young man desires a position in the office of an electrical or rubber house. Four years experience, good penman, also typewriter operator. Can furnish good references. Address "R. S." Room 4, 111 Liberty St., N. Y.

**WANTED**—Position in India rubber trade by a thorough business man who is also a practical and scientific chemist of extensive experience. Has travelled much in United States, Canada and Europe, and is at home amongst the chemical, paper, engineering and some other trades. Speaks and writes German and French, age 30, highest references. Would not object to travel in United States or Europe, but position in factory or store preferred. Address "HARADEM," INDIA RUBBER WORLD OFFICE.

**WANTED**—A young man to travel on the Pacific Coast. Must be well posted in rubber boots, shoes and clothing, belting, packing and hose, and fire department supplies. Address McILROY & MOORE, Portland, Oregon.

**WANTED**—By a man with 28 years experience as super or foreman at making rubber clothing. Understands all the latest improvements, also mechanical rubber. Reclaims own rubber and makes own substitute. Address "W. R.," INDIA RUBBER WORLD OFFICE.

**WANTED**—A salesman who has a trade in Western cities of not less than \$50,000, on gossamer rubber clothing. Address "MANUFACTURER," INDIA RUBBER WORLD OFFICE.

**WANTED**—Second-hand tubing machine. Must be in good order and price reasonable. "M. M. M.," INDIA RUBBER WORLD OFFICE.

**WANTED**—Foreman for hard rubber factory. Must be competent and sober. "S.," INDIA RUBBER WORLD OFFICE.

**WANTED**—Competent man to keep stock and ship goods, for Manufacturing Rubber Boot and Shoe Co. Answer confidentially, state experience, reference and lowest salary accepted. "BUSINESS," INDIA RUBBER WORLD OFFICE.

**SITUATION WANTED**—A young man who thoroughly understands the manufacture of rubber clothing in all its branches, good knowledge of belting, hose and mechanical goods, 10 years experience, seeks a position as superintendent or foreman. Is a good bookkeeper and business manager. First class references. Address, "NO BLOWER," INDIA RUBBER WORLD OFFICE.

**A LIVE RUBBER GOODS SALESMAN**, posted in all branches of the business is open for engagement with manufacturer or rubber goods house. 5 years with large corporation. Good connection and extensive acquaintance with best trade throughout the country. Unquestionable reference. Address C. M. INDIA RUBBER WORLD.

**WANTED**—Man who thoroughly understands the mixing and calendaring of white sheeting. Good wages. RATHBURN, INDIA RUBBER WORLD OFFICE.

**WANTED**—A man thoroughly posted in the manufacture of Insulated Wire. No visionary inventors wanted, but a straightforward, practical workman who knows his business. Address INSULATION, INDIA RUBBER WORLD OFFICE.

**WANTED**—A clerk experienced in keeping stock in a rubber store, also a typewriter. Best references and bond required. Address HENRY WERNER & CO., 27 Elizabeth Street, East Detroit, Mich.

# WANTED

By an established house in the West, commanding a large trade on

## RUBBER CLOTHING,

Some other lines to handle in connection with same, such as  
**HOSE, BELTING, PACKING, DRUG SUNDRIES, ETC.**

Address "WEST," Care India Rubber World.

# PULVERIZED MINERALS AND EARTHS

ASBESTINE, FRENCH TALC, SOAPSTONE, BARYTES, BASTARD BARYTES,  
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PREPARED ESPECIALLY FOR RUBBER WORK.

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